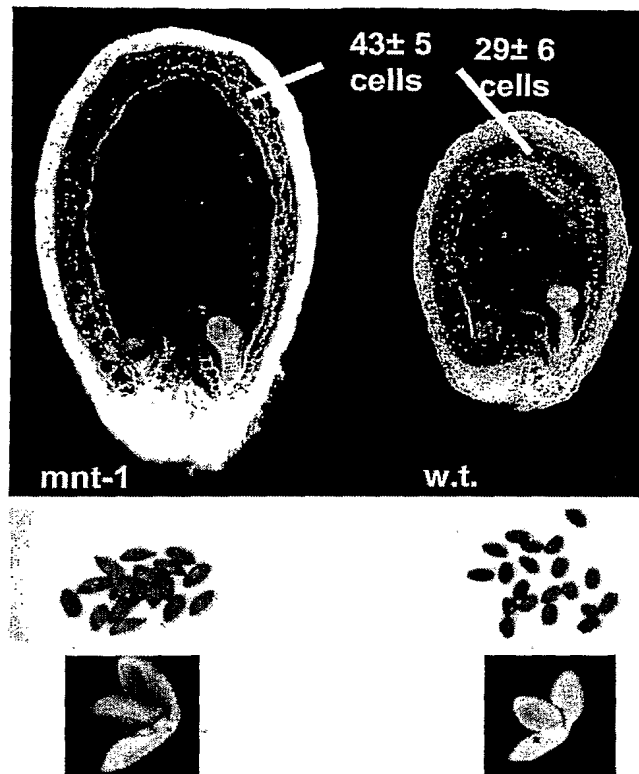


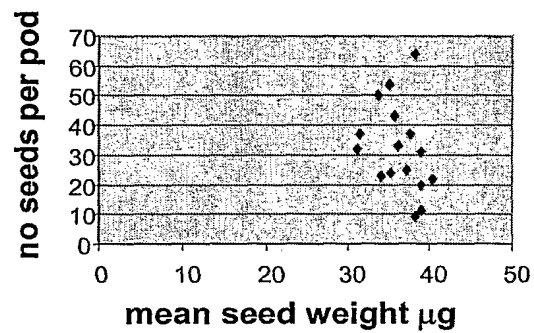
1/51

Figure 1

1A mnt-1 vs wild-type seeds



1B Seed weight vs no. seeds per pod in mnt-1



1C Maternal effect of mnt-1 mutation

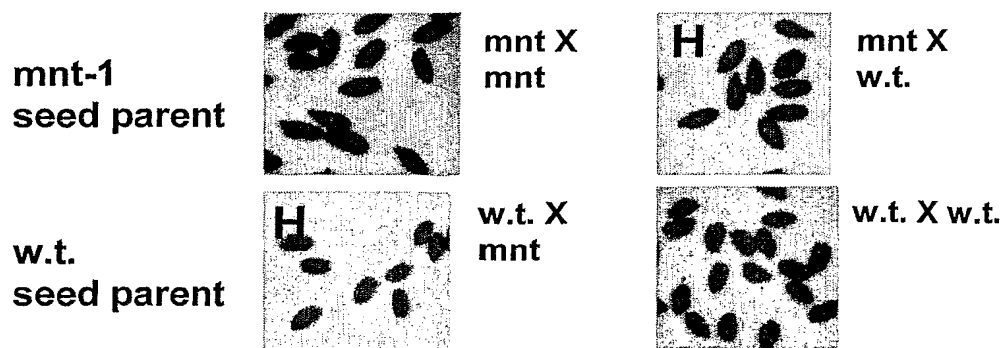
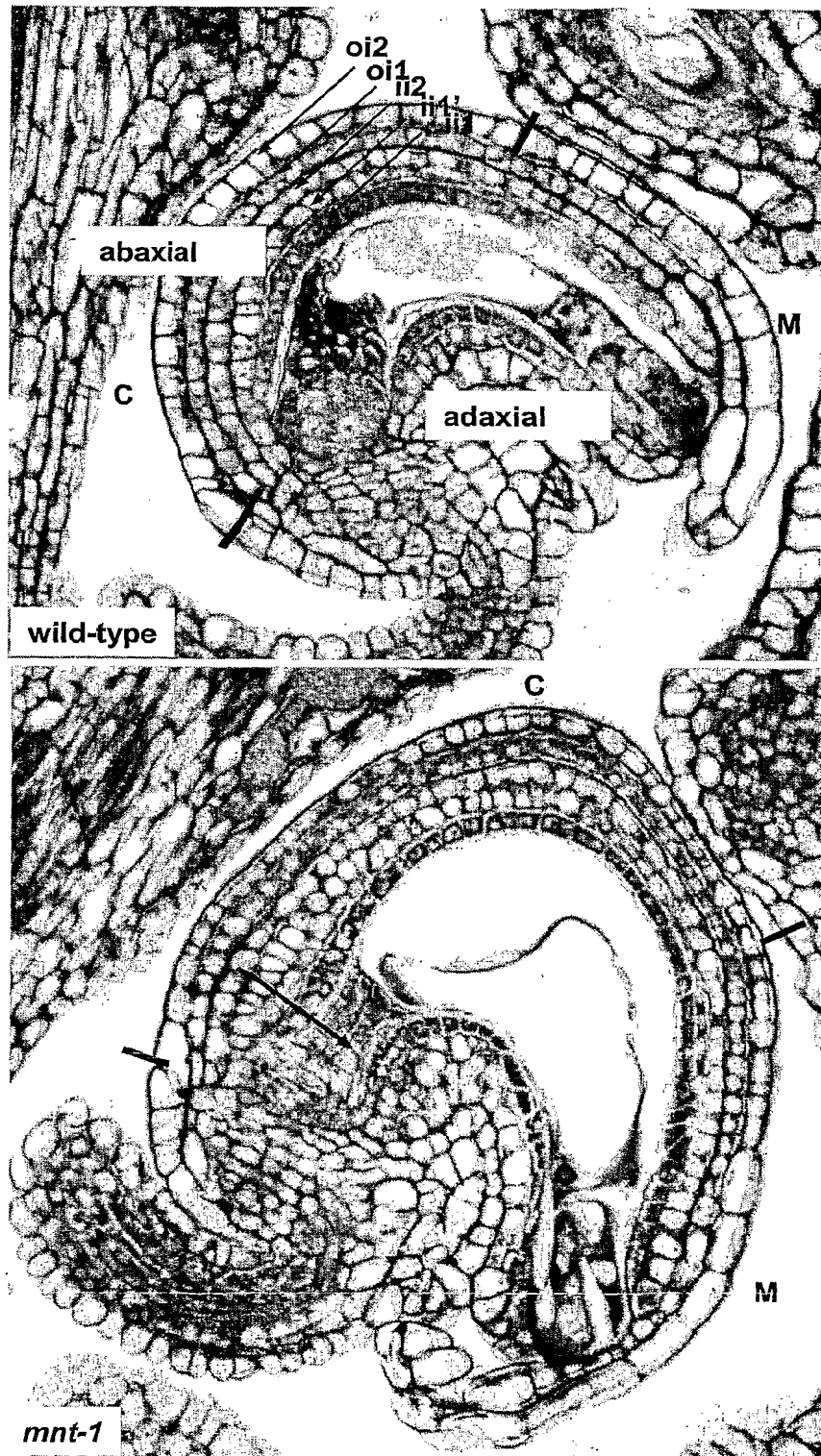


Figure 2

2A Mature w.t. and *mnt-1* ovules



2B Cell number and size in w.t. and *mnt-1* integuments

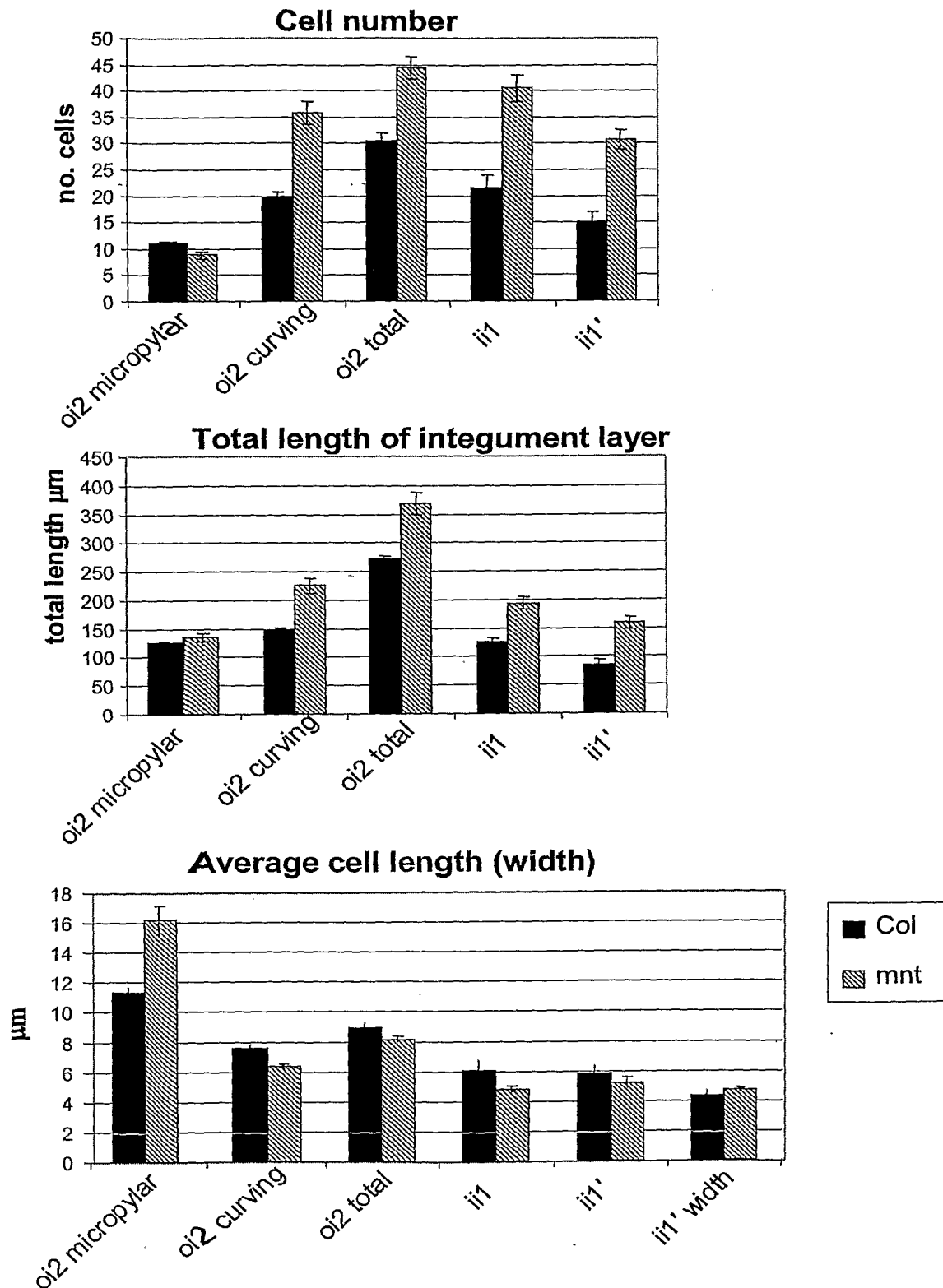
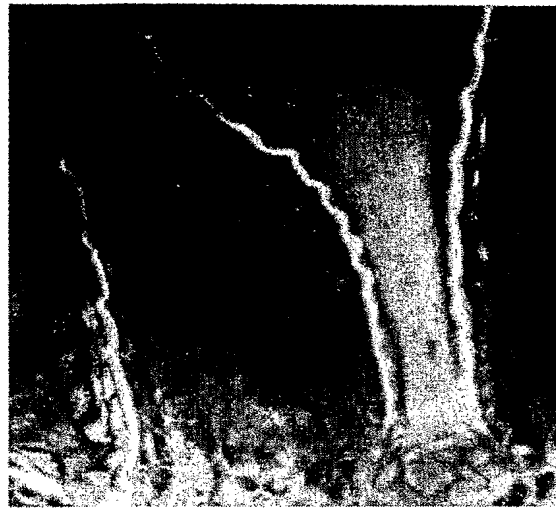


Figure 3

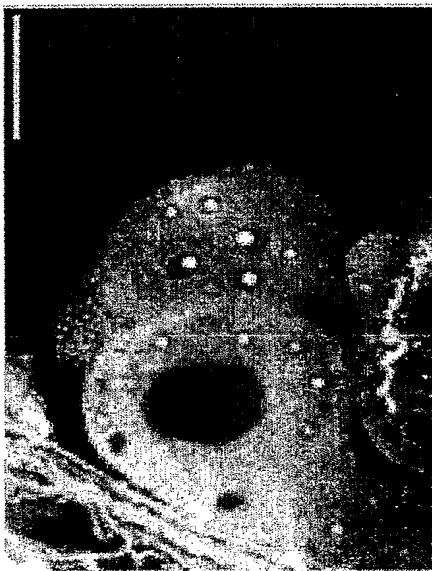
Chalazal endosperm



w.t. 7DAP



mnt-1 7DAP

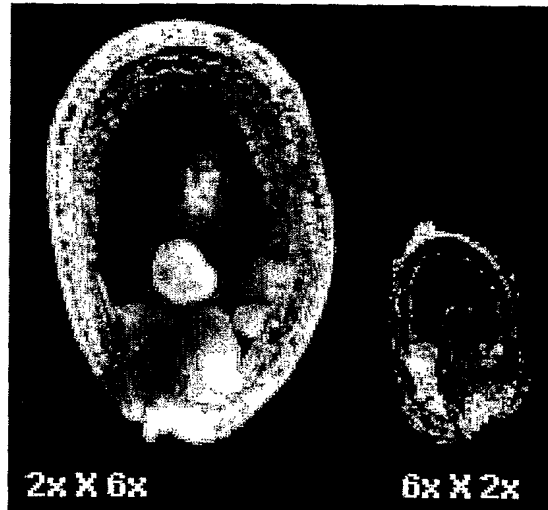


2x X 6x 5 DAP

Bars = 50 μ m

Figure 4

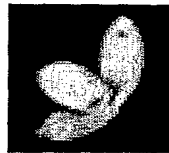
4A Endosperm-led growth



big cavity



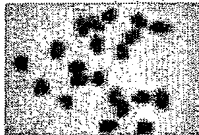
normal



small



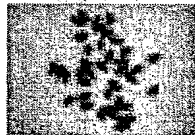
C24 2x X 4x



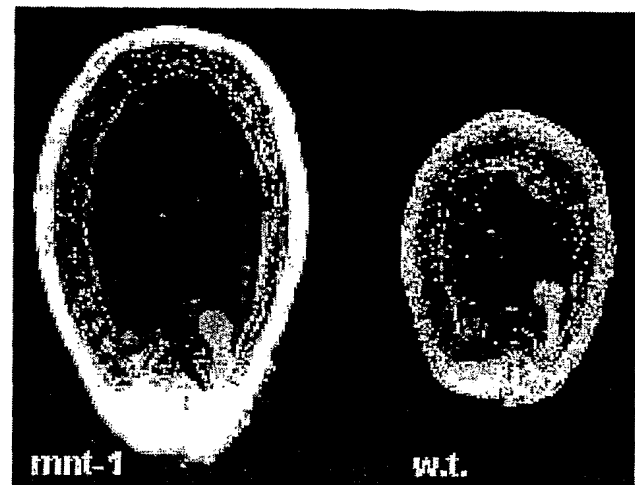
2x X 2x



4x X 2x



4B Integument-led growth



big cavity



normal



Col mnt-1



Col w.t.



4C 'Big bag' hypothesis: seed and embryo size set by size of the seed cavity

1. Division in endosperm
(maternal and paternal control)
2. Division in integuments/
seed coat (maternal control)



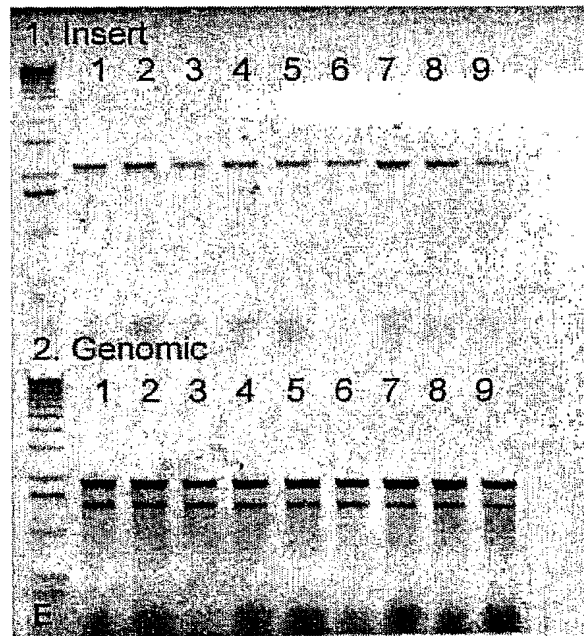
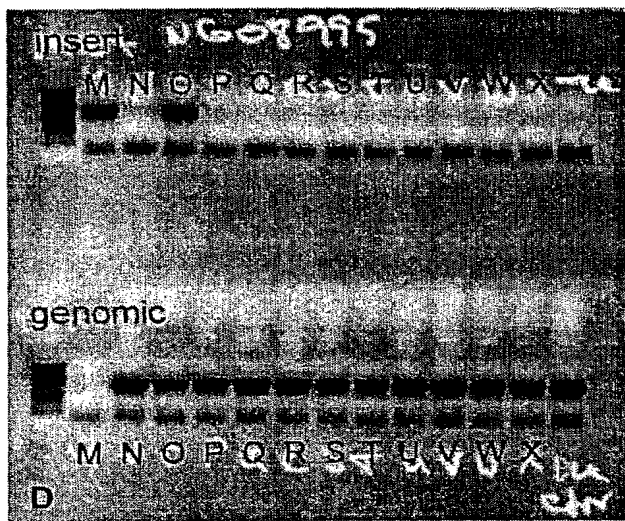
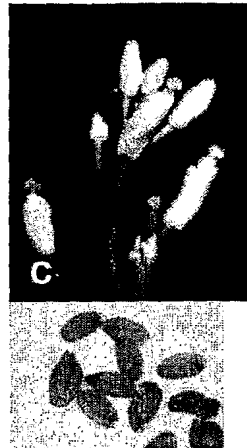
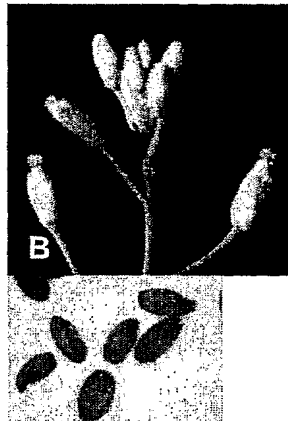
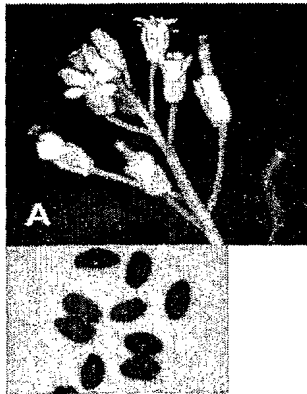
Figure 5

Allelism of mnt-1 and Salk insertion line 108995

Col-3 w.t.

mnt-1

Salk 108995 homozygote



F1 mnt-1 X Salk 108995



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Figure 6

Alignment of w.t. MNT and mutant mnt-1 cDNA

MNT * 20 * 40 * 60

ATGGCGAGTTCGGAGGTTTCAATGAAAGGTAATCGTGGAGGAGATAACTTCTCCTCCTCT
 ATGGCGAGTTCGGAGGTTTCAATGAAAGGTAATCGTGGAGGAGATAACTTCTCCTCCTCT

mnt-1

 * 80 * 100 * 120

GGTTTTAGTGACCCCTAAGGAGACTAGAAATGTCTCCGTCCCGGCGAGGGGCAAAAAGT
 GGTTTTAGTGACCCCTAAGGAGACTAGAAATGTCTCCGTCCCGGCGAGGGGCAAAAAGT

 * 140 * 160 * 180

AATTCTACCCGATCCGCTGCGGCTGAGCGTCTTTGGACCCCTGAGGCTGCTCTTTACAGA
 AATTCTACCCGATCCGCTGCGGCTGAGCGTCTTTGGACCCCTGAGGCTGCTCTTTACAGA

 * 200 * 220 * 240

GAGCTATGGCAGGCTTGTGCTGGTCCGCTTGTGACGGTTCTAGACAAGACGACCGAGTC
 GAGCTATGGCAGGCTTGTGCTGGTCCGCTTGTGACGGTTCTAGACAAGACGACCGAGTC

 * 260 * 280 * 300

TTCTATTTTCTCCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAACCAGGCGGCAGAA
 TTCTATTTTCTCCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAACCAGGCGGCAGAA

 * 320 * 340 * 360

CAACAGATGCCTCTCTATGATCTTCCGTCAAAGCTTCTCTGTCCAGTTATTAATGTAGAT
 CAACAGATGCCTCTCTATGATCTTCCGTCAAAGCTTCTCTGTCCAGTTATTAATGTAGAT

 * 380 * 400 * 420

TTAAAGGCAGAGGCAGATACAGATGAAGTTTATGCGCAGATTACTCTTCTCCTGAGGCT
 TTAAAG----AGGCAGATACAGATGAAGTTTATGCGCAGATTACTCTTCTCCTGAGGCT

 * 440 * 460 * 480

AATCAAGACGAGAATGCAATTGAGAAAGAAGCGCCTCTTCCTCCACCTCCGAGGTTCCAG
 AATCAAGACGAGAATGCAATTGAGAAAGAAGCGCCTCTTCCTCCACCTCCGAGGTTCCAG

 * 500 * 520 * 540

GTGCATTCTTCTGCAAAACCTTGACTGCATCCGACACAAGTACACATGGTGGATTTTCT
 GTGCATTCTTCTGCAAAACCTTGACTGCATCCGACACAAGTACACATGGTGGATTTTCT

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* 560 * 580 * 600
GTTCTTAGGCGACATGCGGATGAATGTCTCCACCTCTGGATATGTCTCGACAGCCTCCC
GTTCTTAGGCGACATGCGGATGAATGTCTCCACCTCTGGATATGTCTCGACAGCCTCCC

* 620 * 640 * 660
ACTCAAGAGTTAGTTGCAAAGGATTTGCATGCAAATGAGTGGCGATTTCAGACATATATTC
ACTCAAGAGTTAGTTGCAAAGGATTTGCATGCAAATGAGTGGCGATTTCAGACATATATTC

* 680 * 700 * 720
CGGGGTCAACCACGGAGGCATTTGCTACAGAGTGGGTGGAGTGTGTTTGTTAGCTCCAAA
CGGGGTCAACCACGGAGGCATTTGCTACAGAGTGGGTGGAGTGTGTTTGTTAGCTCCAAA

* 740 * 760 * 780
AGGCTAGTTGCAGGCGATGCGTTTATATTTCTAAGGGGCGAGAATGGAGAATTAAGAGTT
AGGCTAGTTGCAGGCGATGCGTTTATATTTCTAAGGGGCGAGAATGGAGAATTAAGAGTT

* 800 * 820 * 840
GGTGTAAAGGCGTGCGATGCGACAACAAGGAAACGTGCCGTCTTCTGTTATATCTAGCCAT
GGTGTAAAGGCGTGCGATGCGACAACAAGGAAACGTGCCGTCTTCTGTTATATCTAGCCAT

* 860 * 880 * 900
AGCATGCATCTTGGAGTACTGGCCACCGCATGGCATGCCATTTCAACAGGGACTATGTTT
AGCATGCATCTTGGAGTACTGGCCACCGCATGGCATGCCATTTCAACAGGGACTATGTTT

* 920 * 940 * 960
ACAGTCTACTACAAACCCAGGACGAGCCCATCTGAGTTTATTGTTCCGTTTCGATCAGTAT
ACAGTCTACTACAAACCCAGGACGAGCCCATCTGAGTTTATTGTTCCGTTTCGATCAGTAT

* 980 * 1000 * 1020
ATGGAGTCTGTTAAGAATAACTACTCTATTGGCATGAGATTCAAAATGAGATTTGAAGGC
ATGGAGTCTGTTAAGAATAACTACTCTATTGGCATGAGATTCAAAATGAGATTTGAAGGC

* 1040 * 1060 * 1080
GAAGAGGCTCCTGAGCAGAGGTTTACTGGCACAATCGTTGGGATTGAAGAGTCTGATCCT
GAAGAGGCTCCTGAGCAGAGGTTTACTGGCACAATCGTTGGGATTGAAGAGTCTGATCCT

* 1100 * 1120 * 1140
ACTAGGTGGCCAAAATCAAAGTGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCTAGT
ACTAGGTGGCCAAAATCAAAGTGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCTAGT

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* 1160 * 1180 * 1200
ATTCTCTCGACCTGATAGAGTATCTCCGTGGAAAGTAGAGCCAGCTCTTGCTCCTCCTGCT
ATTCTCTCGACCTGATAGAGTATCTCCGTGGAAAGTAGAGCCAGCTCTTGCTCCTCCTGCT

* 1220 * 1240 * 1260
TTGAGTCCTGTTCCAATGCCTAGGCCTAAGAGGCCAGATCAAATATAGCACCTTCATCT
TTGAGTCCTGTTCCAATGCCTAGGCCTAAGAGGCCAGATCAAATATAGCACCTTCATCT

* 1280 * 1300 * 1320
CCTGACTCTTCGATGCTTACCAGAGAAGGTACAACCTAAGGCAAACATGGACCCCTTTACCA
CCTGACTCTTCGATGCTTACCAGAGAAGGTACAACCTAAGGCAAACATGGACCCCTTTACCA

* 1340 * 1360 * 1380
GCAAGCGGACTTTCAAGGGTCTTGCAAGGTCAAGAATACTCGACCTTGAGGACGAAACAT
GCAAGCGGACTTTCAAGGGTCTTGCAAGGTCAAGAATACTCGACCTTGAGGACGAAACAT

* 1400 * 1420 * 1440
ACTGAGAGTGTAGAGTGTGATGCTCCTGAGAATTCTGTTGCTCTGGCAATCTTCAGCGGAT
ACTGAGAGTGTAGAGTGTGATGCTCCTGAGAATTCTGTTGCTCTGGCAATCTTCAGCGGAT

* 1460 * 1480 * 1500
GATGATAAGGTTGACGTGGTTTCGGGTTCTAGAAAGATATGGATCTGAGAACTGGATGTCC
GATGATAAGGTTGACGTGGTTTCGGGTTCTAGAAAGATATGGATCTGAGAACTGGATGTCC

* 1520 * 1540 * 1560
TCAGCCAGGCATGAACCTACTTACACAGATTTGCTCTCCGGCTTTGGGACTAACATAGAT
TCAGCCAGGCATGAACCTACTTACACAGATTTGCTCTCCGGCTTTGGGACTAACATAGAT

* 1580 * 1600 * 1620
CCATCCCATGGTCAGCGGATACCTTTTTATGACCATTTCATCATCACCTTCTATGCCTGCA
CCATCCCATGGTCAGCGGATACCTTTTTATGACCATTTCATCATCACCTTCTATGCCTGCA

* 1640 * 1660 * 1680
AAGAGAATCTTGAGTGATTTCAGAAAGCAAGTTCGATTATCTTGCTAACCAGTGGCAGATG
AAGAGAATCTTGAGTGATTTCAGAAAGCAAGTTCGATTATCTTGCTAACCAGTGGCAGATG

* 1700 * 1720 * 1740
ATACACTCTGGTCTCTCCCTGAAGTTACATGAATCTCCTAAGGTACCTGCAGCAACTGAT
ATACACTCTGGTCTCTCCCTGAAGTTACATGAATCTCCTAAGGTACCTGCAGCAACTGAT

* 1760 * 1780 * 1800
GCGTCTCTCCAAGGGCGATGCAATGTTAAATACAGCGAATATCCTGTTCTTAATGGTCTA
GCGTCTCTCCAAGGGCGATGCAATGTTAAATACAGCGAATATCCTGTTCTTAATGGTCTA

* 1820 * 1840 * 1860
TCGACTGAGAATGCTGGTGGTAACTGGCCAATACGTCCACGTGCTTTGAATTATTATGAG
TCGACTGAGAATGCTGGTGGTAACTGGCCAATACGTCCACGTGCTTTGAATTATTATGAG

* 1880 * 1900 * 1920
GAAGTGGTCAATGCTCAAGCGCAAGCTCAGGCTAGGGAGCAAGTAACAAAACAACCCTTC
GAAGTGGTCAATGCTCAAGCGCAAGCTCAGGCTAGGGAGCAAGTAACAAAACAACCCTTC

* 1940 * 1960 * 1980
ACGATACAAGAGGAGACAGCAAAGTCAAGAGAAGGGAACTGCAGGCTCTTTGGCATTTCCT
ACGATACAAGAGGAGACAGCAAAGTCAAGAGAAGGGAACTGCAGGCTCTTTGGCATTTCCT

* 2000 * 2020 * 2040
CTGACCAACAACATGAATGGGACAGACTCAACCATGTCTCAGAGAAACAACCTTGAATGAT
CTGACCAACAACATGAATGGGACAGACTCAACCATGTCTCAGAGAAACAACCTTGAATGAT

* 2060 * 2080 * 2100
GCTGCGGGGCTTACACAGATAGCATCACCAAAGGTTGAGGACCTTTGAGATCAGTCAAAA
GCTGCGGGGCTTACACAGATAGCATCACCAAAGGTTGAGGACCTTTGAGATCAGTCAAAA

* 2120 * 2140 * 2160
GGGTCAAATCAACAAACGATCATCGTGAACAGGGGAAGACCATTCCAGACTAATAATCCT
GGGTCAAATCAACAAACGATCATCGTGAACAGGGGAAGACCATTCCAGACTAATAATCCT

* 2180 * 2200 * 2220
CATCCGAAGGATGCTCAAACGAAAACCAACTCAAGTAGGAGTTGCACAAAGGTTCAACAAG
CATCCGAAGGATGCTCAAACGAAAACCAACTCAAGTAGGAGTTGCACAAAGGTTCAACAAG

* 2240 * 2260 * 2280
CAGGGAATTGCACCTTGGCCGTTTCAAGTGGATCTTTCAAAGTTCCAAAACCTATGAGGAGTTA
CAGGGAATTGCACCTTGGCCGTTTCAAGTGGATCTTTCAAAGTTCCAAAACCTATGAGGAGTTA

* 2300 * 2320 * 2340
GTGCTGAGCTGGACAGGCTGTTTGAGTTCAATGGAGAGTTGATGGCTCCTAAGAAAGAT
GTGCTGAGCTGGACAGGCTGTTTGAGTTCAATGGAGAGTTGATGGCTCCTAAGAAAGAT

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* 2360 * 2380 * 2400
TGGTTGATAGTTTACACAGATGAAGAGAATGATATGATGCTTGTTGGTGACGATCCTTGG
TGGTTGATAGTTTACACAGATGAAGAGAATGATATGATGCTTGTTGGTGACGATCCTTGG

* 2420 * 2440 * 2460
CAGGAGTTTTGTTGCATGGTTCGCAAAATCTTCATATACACGAAAGAGGAAGTGAGGAAG
CAGGAGTTTTGTTGCATGGTTCGCAAAATCTTCATATACACGAAAGAGGAAGTGAGGAAG

* 2480 * 2500 * 2520
ATGAACCCGGGGACTTTAAGCTGTAGGAGCGAGGAAGAAGCAGTTGTTGGGGAAGGATCA
ATGAACCCGGGGACTTTAAGCTGTAGGAGCGAGGAAGAAGCAGTTGTTGGGGAAGGATCA

* 2540 * 2560 * 2580
GATGCAAAGGACGCCAAGTCTGCATCAAATCCTTCATTGTCCAGCGCTGGGAACTCTTAA
GATGCAAAGGACGCCAAGTCTGCATCAAATCCTTCATTGTCCAGCGCTGGGAACTCTTAA

Figure 7

Alignment of w.t. MNT and mutant mnt-1 protein

MNT	*	20	*	40	*	60
MASSEVSMKGNRGGDNFSSSGFSDPKETRNVSVAGEGOKSNSTRSAAAERALDPEAALYR						
MASSEVSMKGNRGGDNFSSSGFSDPKETRNVSVAGEGOKSNSTRSAAAERALDPEAALYR						
mnt-1						
	*	80	*	100	*	120
ELWHACAGPLVTVPRQDDRVFYFPQGHIEQVEASTNQAAEQOMPLYDLPSKLLCRVINVD						
ELWHACAGPLVTVPRQDDRVFYFPQGHIEQVEASTNQAAEQOMPLYDLPSKLLCRVINVD						
	*	140	*	160	*	180
LKAEADTDEVYAOITLLPEANQDENATEKEAPLPPPPRFQVHSFCKTLTASDTSTHGGS						
LKRQIQMKFMRRLLEFRLIKTRMQLRKKRLFLHLRGSRCIRSAKP-----						
	*	200	*	220	*	240
VLRRHADECLPPLDMSRQPPTQELVAKDLHANEWRFHIFRGQPRRHLLQSGWSVFVSSK						

	*	260	*	280	*	300
RLVAGDAFIFLRGENGELRVGVRRAMRQQGNVPSSVISSSHMHGLGVLATAWHAISTGTMF						

	*	320	*	340	*	360
TVYYKPRTPSPSEFIVPFDOYMESVKNNYSIGMRFKMRFEGEAAPEQRFITGTIVGLEESDP						

	*	380	*	400	*	420
TRWPKSKWRSCLKVRWDETSSIPRPDRVSPWKVEPALAPPALSPVPMRPKRPNSNIAPSS						

	*	440	*	460	*	480
PDSSMLTREGTTKANMDPLPASGLSRVLOGQEYSTLRKHTESVECDAPENSVVWQSSAD						

	*	500	*	520	*	540
DDKVDVVSQSRRYGSENMSSARHEPTYTDLLSGFGTNIDPSHGQRIPIFYDHSSSPSMPA						

	*	560	*	580	*	600
KRIILSDSEGKFDYLANQWQMIHSGLSLKLHESPKVPAATDASLQGRCNVKYSEYPVLNGL						

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* 620 * 640 * 660
STENAGGNWP IRPRALNYYEEVVNAQAAQAREQVTKQPF T IQEETAKSREGNCRLFGIP

* 680 * 700 * 720
LTNNMNGTDSTMSQRNNLNDAAGLTQIASPKVQDLSDQSKGSKSTNDHREQGRPFQTNNP

* 740 * 760 * 780
HPKDAQT KTNSRSCTKVHKOGIALGRSVDLSKFQNYEELVAELDRLFEFNGLMAPKKD

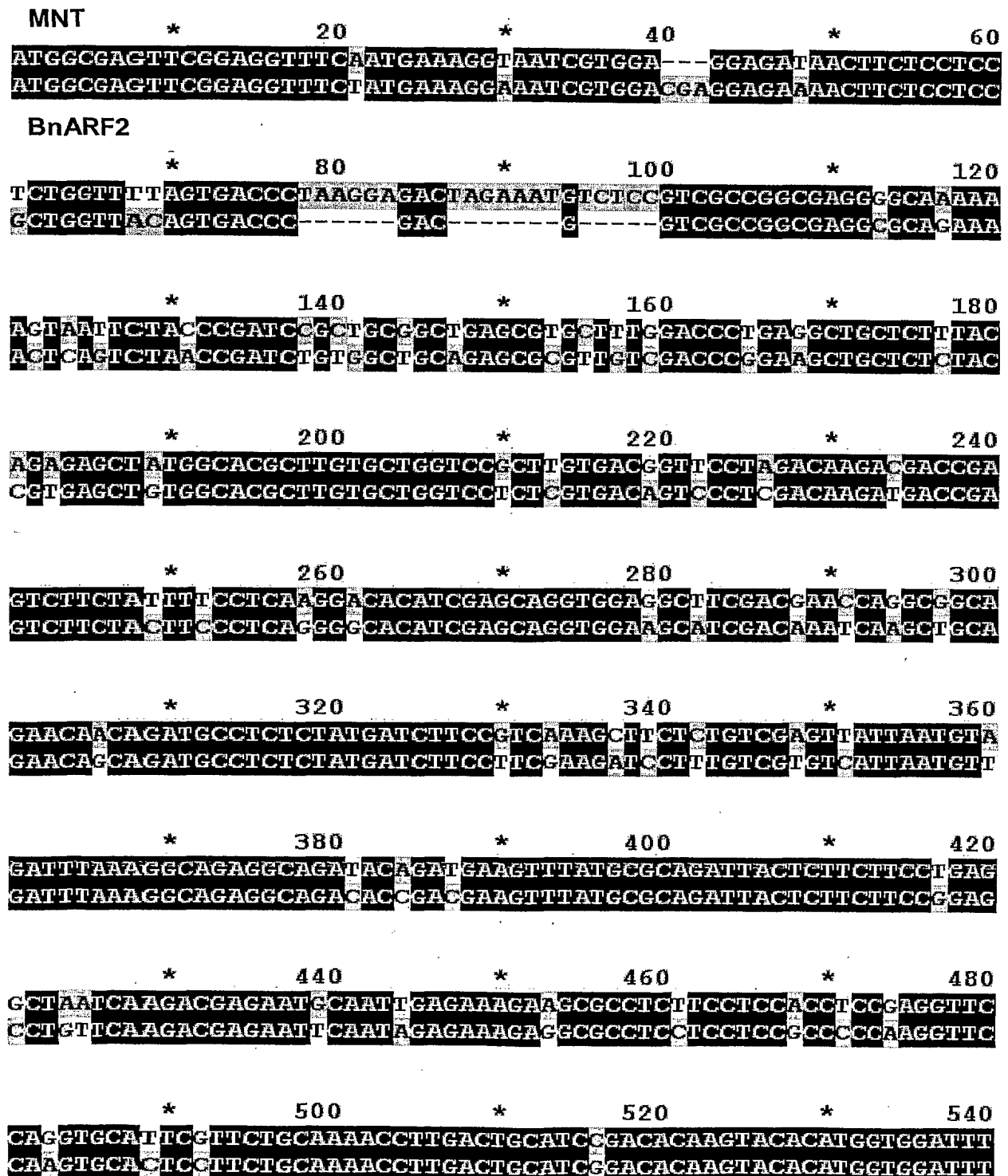
* 800 * 820 * 840
WLIIVYDEENDMMLVGDDPWQEFCCMVRKIFIYTKEEVVKMNP GTLSRSEEEAVVGEGS

*
DAKDAKSASNPSLS SAGNS

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Figure 8

Alignment of MNT and BnARF2 cDNA



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* 560 * 580 * 600
TCTGTTCTTAGGCGACATGCGGATGAATGTCTCCACCTCTGGATATGTCTCGACAGCCT
TCTGTTCTTAGGCGGACATGCGGATGAATGTCTCCACCTCTGGATATGTCTCGACAGCCT

* 620 * 640 * 660
CCCACTCAAGAGTTAGTTGCAAAGGATTTGCATGCAAATGAGTGGCGATTTCAGACATATA
CCTACTCAGGAGTTAGTTGCAAAGGATTTGCATGCAAAGGAGTGGCGTTTCGACATATT

* 680 * 700 * 720
TTCCGGGGTCAACCACGGAGGCATTTGCTACAGAGTGGGTTGGAGTGTGTTTGTAGCTCC
TTCCGGGGTCAACCACGGAGGCATTTGCTACAGAGTGGGTTGGAGTGTGTTTGTAGCTCC

* 740 * 760 * 780
AAAGGGCTAGTTGCAGGCGATGCGTTTATATTTCTAAGGGGCGAGAATGGAGAATTAAAGA
AAGAGGGCTGCTGCAGGCGATGCTTTTATATTTCTAAGGGGCGAGAATGGAGAATTACGT

* 800 * 820 * 840
GTGGTGTAAAGGCGTGCGATGCGACAAACAGGAAACGTTGCCGTCTTCTGTTATATCTAGC
GTGGTGTAAAGGCGTGCAATGCGGCGACAAAGGAAATGTGCCATCTCTGTTATATCAAGC

* 860 * 880 * 900
CATAGCATGCATCTTGGAGTACTGGCCACCGCATGGCATGCCATTTC AACAGGCACTATG
CACAGCATGCATCTCGGAGTATTGGCCACTGCCCTGGCACGCTATTTC AACTGGAACCATG

* 920 * 940 * 960
TTTACAGTCTACTA CAAACCAGGACGAGGCCATCTGAGTTTATTGTTCCGTTTGGATCAG
TTTACAGTCTACTA TAAACCAGGACTAGTCCCTTCAGAGTTTATTGTTCCGTTTGGATCAG

* 980 * 1000 * 1020
TATATGGAGTCTGT TAAGAAATACTACTCTATTGGCATGAGATTCAAATGAGATTTGAA
TATACGGAGTCCGTGAAGATTAATACTACTCCATAGGCATGAGATT TAAATGAGATTTGAA

* 1040 * 1060 * 1080
GGCGAAGAGGCTCCTGAGCAGAGGTTTACTGGCACAAATCGTTGGGATTGAAGAGTCTGAT
GGCGAAGAGGCTCCGAGCAGAGGTTTACTGGCACAAATCGTTGGGATTGAAGACTCTGAC

* 1100 * 1120 * 1140
CCTACTAGGTGGCCAAATCAAAATGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCT
CCGACGAGGTGGGCAAATCAAAATGGAGATCCCTCAAGGTACGGTGGGATGAGACCACT

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* 1160 * 1180 * 1200
AGTATTCTCTCGACCTGATAGAGTATCTCCGTGGAAAGTATAGAGCCAGCTCTTCTCTCTCTCT
AGTATTCTCTCGACCTGATAGAGTATCTCCGTGGAAAGTATAGAGCCAGCTCTTCTCTCTCTCT

* 1220 * 1240 * 1260
GCTTTGAGTCCTGTCCCAATGCCTAGGCGCTAAGAGGCCAGATCAAATATAGCAGCTTCA
GCTTTGAGTCCTGTCCCAATGCCTAGGCGCTAAGAGGCCAGATCTAATCTAGCTTCTTCA

* 1280 * 1300 * 1320
TCTCCTGACTCTTCCGATGCTTACCAGAGAAGGTACAACTAAGGCCAATCATGGACCTTTTA
ACTCCGGACTCTTCCGATGCTTACCAGAGAAGGTACAACTAAGGCCAATCATGGACCTTTTA

* 1340 * 1360 * 1380
CCAGCAAGCGGACTTTCAGGGTCTTGCAAGGTCAAGAATACTCGACCTTGAGGACGAAA
CCGGCAAGTGGACTATCAAGGGTCTTGCAAGGTCAAGAATACTCGACCTTGAGGACGAAA

* 1400 * 1420 * 1440
CATACTGAGAGTGTAGAGTGTGATGCTCCTGAGAAATTCCTGTTGTCTGGCAATCTTCAGCG
CATGTTGAGAGTGTAGAAATGCGATGCTCCTGAGAAATTCCTGTTGTCTGGCAATCTTCAGCT

* 1460 * 1480 * 1500
GATGATGATAAGGTTGACGTTGCTTTCGGGTTCTAGAAAGATATGGATCTGAGAACTGGATG
GATGATGACAAGGTTGATGTGATTTTCAGCTTCTAGGAGATATG-----AGAACTGGATA

* 1520 * 1540 * 1560
TCCTCAGCCAGGCATGAACCTACTTACACAGATTTGCTCTCCGGCTTTGGGACTAACATA
TCCTCAGGTAGGCATGGACCTACTTGCACGGATTTGCTTTCTGGCTTTGGGACAACATA

* 1580 * 1600 * 1620
GATCCATCCCATGGTCAGCGGATACCTTTTTTATGACCATTT---CATCATCACCTTCTATG
GAACCACTCACGGTCATCAGATACCTTTTTTATGACCGTTTATCATCACCTTCTGTG

* 1640 * 1660 * 1680
CCTGCAAGAGAAATCTTGAGTGAATTCAGAAAGGCAAGTTGATTTATCTTGCTAACCACTGG
CCTGCAAGGAAATCTTGAGCGACCAAGGATGGCAAGTTTGAATATCTTGCTAACCACTGG

* 1700 * 1720 * 1740
CAGATGATACACTCTGGTCTCTCCCTGAAGTTACATGAATCTCCTAAGGTACCTGCAGCA
---ATGATGCACTCAGGCCTTCTCCCTGAAGTTACATGAATCTCCTAAGGTACCTGCAGCA

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* 1760 * 1780 * 1800
ACTGATGCGTCTCTCCAAGGGCCATGCAATGTTAAATACAGCGAATATCCTGTTCTTAAT
TCGATGCGCTCTTCCAAGGGATAGGCAATCCCAATTACGGCGAATATGCTTTGCCCTCGT

* 1820 * 1840 * 1860
GGTCTATCGACTGAGAATGCTGGTGGTAACTGGCCCAATACGTCCACGTGCTTTGAATTAT
GCAGTGACGACTGAGAATGCTGGTGGTCAACTGGCCCAATACGTCCACGTGCTCTAAATTAT

* 1880 * 1900 * 1920
TATGAGGAAGTGGTCAATGCTCAAGCGCAAGSCTCAGGCTAGGGAGCAAGTAACAAACAA
TTTGAAGAAGCGGT-----TCAT-----GCTCAGGCTAGAGAGCATGTGACAAACGT

* 1940 * 1960 * 1980
CCCTTCA--CGATACAAGAGGAGACAGCAAAGTCAAGAGAGGGGAAGTGCAGGCTCTTTG
CC-TCCGGTCC-TACAAGAGGAGGCAGCAAAGCCAAGAGACGGGAAGTGCAGGCTTTTG

* 2000 * 2020 * 2040
GCATTCCTCTGACCAACAACATGAATGGGACAGACTCAACCATGTCTCAGAGAAACAAGT
GCATTCCTCTGCTGAACAACGTGAATGGGACAGATACAACTTTGTCTCAGAGAAACAATT

* 2060 * 2080 * 2100
TGAATGATGCTGCGGGGCTTACACAGATAGCATCACCAAGGGTTCAGGACCTTTTCAGATC
TGAATGACCTGCGGGGCTTACGCAGATGSCATCACCAAGGGTTCAGGATCTTTCTGACC

* 2120 * 2140 * 2160
AGTCAAAAGGGTCAAAATCAACAAACGATCATCGTGAACAGGGGAAGACCATTCCAGACTA
AGTCAAAAGGGTCAAAATCGACAAATGATCATCGTGAGCAAGGACGACCATTCCCGSTTA

* 2180 * 2200 * 2220
ATAATCCTCATCCGAAGGATGCTCAAACGAAAACCAACTCAAGTAGGAGTTGCACAAAGG
GTAAACCCCATCCGAAGAGCTTCAAACCAAAACAAACTCATGTAGGAGCTGCACGAAGG

* 2240 * 2260 * 2280
ITTCACAAGCAGGGGAATTGCACTTGGCCGTTTCAGTGGATCTTTCAAAGTTCCAAACTATG
ITTCAGAAGCAGGGGATTGCACTTGGCCGTTTCAGTGGATCTCTCAAAGTTCCAGAACTATG

* 2300 * 2320 * 2340
AGGAGTTTASTCGCTGAGCTGGACAGGCTGTTTGAGTTCAATGGAGAGTTGATGGCTCCTA
AGGAGTTTGTTAAGTGAATGGATAGGCTGTTTGAGTTCAATGGAGAGTTGATGGCTCCTA

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* 2360 * 2380 * 2400
AGAAAGATTGGT TGATAGTTTACACAGATGAA GAGAATGATATGATGCTTGTTGGT GACG
AGAAAGATTGGCTGATAGTTTACACAGATGAT GAGAATGATATGATGCTTGTTGGAGACG

* 2420 * 2440 * 2460
ATCCTTGGCAGGAGTTTTGTTGCATGGTTCC AAAATCTTCATATACACGAAAGAGGAAG
ATCCTTGGCAGGAGTTTTGTTGCATGGTTCC AAAATCTTCATATACACGAAAGAGGAGG

* 2480 * 2500 * 2520
TGAGGAAGATGAACCCGGGGA ACTTTAAGCTCTTAGGAG CGAGGAAGAAG CAGTTGTTGGGG
TGAGGAAGATGAACCCGGGGA ACTCTATGCTCTTAGGAAC CGAGGAAGAAG CAGTTGTTGGGG

* 2540 * 2560 * 2580
AAGGATCAGATGCAAAGGACGCCAAGTCTGCATCAAATCCTTCATTGTCCAGCGCTGGGA
AAGGATCAGATGCAAAGGACGCCAAGTCTGCATCAAATCCTTCATTGTCCAGCGCCGGAA

ACTCTTAA
ACTCTTAA

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Figure 9

Alignment of MNT, BnARF2, OsARF2 proteins

```

      *           20           *           40           *
MNTwt : MASSEVSMKGNRC-EDNFSSSGFSDEPKETRNVSVAGEGQKSNSTRSAAAEALDP
BnARF2: MASSEVSMKGNRCRGENFSSAGYSDE-----TVAGEAQKTSNRSVAAERVVDP
OsARF2: -----GDP

      60           *           80           *           100          *
MNTwt : EAALYRELWHACAGPLVTVPRQDDRVFYFPOGHIEQVEASTNQAAEQOMPLYDLR
BnARF2: EAALYRELWHACAGPLVTVPRQDDRVFYFPOGHIEQVEASTNQAAEQOMPLYDLR
OsARF2: ---LYDELWHACAGPLVTVPRVGDLYFYFPOGHIEQVEASMNQVADSOMRLYDLR

      120          *           140          *           160
MNTwt : SKLLCRVINVDLKAEADTDEVYAOITLLPEANQDENATEKEAPLPPP--PRFCVH
BnARF2: SKLLCRVINVDLKAEADTDEVYAOITLLPEPVODENSIEKEAPPPP--PRFCVH
OsARF2: SKLLCRVINVELKAEQDTDEVYAOVMIMPEEENEMAVEKITPTSGRVCARPPVR

      *           180          *           200          *           220
MNTwt : SFCKTLTASDTSTHGGFSVLRRHADECLPPLDMSNOPPTQELVAKDLHANEFWRFR
BnARF2: SFCKTLTASDTSTHGGFSVLRRHADECLPPLDMSROPPTQELVAKDLHASEWRFR
OsARF2: SFCKTLTASDTSTHGGFSVLRRHADECLPPLDMTQSEPTQELVAKDLHSMDWRFR

      *           240          *           260          *
MNTwt : HIFRGQPRRHLLQSGWSVFVSSKRLVAGDAFIFLRGENGELRVGVRRAMRQGENV
BnARF2: HIFRGQPRRHLLQSGWSVFVSSKRLVAGDAFIFLRGENGELRVGVRRAMRQGENV
OsARF2: HIFRGQPRRHLLQSGWSVFVSSKRLVAGDAFIFLRGENGELRVGVRRAMRQLSNV

      280          *           300          *           320          *
MNTwt : PSSVISSHSMLGLVLATAWHAIISTGIMFTVYYKPRTSPSEFIIVPFDOYMESVKNN
BnARF2: PSSVISSHSMLGLVLATAWHAIISTGIMFTVYYKPRTSPSEFIIVPFDOYTESVKIN
OsARF2: PSSVISSQSMHLGLVLATAWHAINIKSMFTVYYKPRTSPSEFIIVPFDOYMESVKNN

      340          *           360          *           380
MNTwt : YSIGMRFKMRFEGEEAPEQRFTGTITVGTIEESDPTRWKSKWRSCLKVRWDETSSIP
BnARF2: YSIGMRFKMRFEGEEAPEQRFTGTITVGTIEDSDPTRWAKSKWRSCLKVRWDETTSIP
OsARF2: YSVGMRFKMRFEGEEAPEQRFTGTITVGTSENLDPV-WPESSWRSCLKVRWDEPSTIP

      *           400          *           420          *           440
MNTwt : RPDRVSPWKTEPALAPPALSPVPMRPFKRPRSNLAPSSPDSSMITREGTITKANMD
BnARF2: RPDRVSPWKTEPALSPPALSPVPMRPFKRPRSNLASSTPDSSMRITREGSSKANMD
OsARF2: RPDRVSPWKTEPASPP-VNPLPLSRVKKRPRPNAPPASPESPITIKAAANKVDTD

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* 460 * 480 *
 MNTwt : PLPA--SGLSRVLOGQEYSLTRTKHTESVECDAPENS-VVWQSSADDDKVDVVS
 BnARF2: PLPA--SGLSRVLOGQEYSLTRTKHTESVECDAPENS-VVWQSSADDDKVDVISA
 OsARF2: PAQAQRSQNSTVLQGQEQMTLRSLNLTESNDSQSDVTAHKPMWSPSPNAAKAHPLTF

500 * 520 * 540 *
 MNTwt : SRRYGSENWMSSARHEPTYDILLSGFGTNIDPSHGQRIFFYDH-SSSPSMPA-KR
 BnARF2: SRRY--ENWISSGRHGPTCIDLLSGFGTNIEPPHGHQIRFFYDRLSSPSSVAA-RK
 OsARF2: QQRPPMDNWMQLGRRETDFKDVRSQ-SQSEFGDSPGFFMQNFDE--APNRLTSFKN

560 * 580 * 600
 MNTwt : IILSDSECKFDYLANQFMTHSGLSIKLHE SPKVPAAATDASLOGRONVEMYSEMPVL
 BnARF2: IILSDQDCKFEYLANQFMTHSGLSIKLHE SPKVPAAADASFQIGNPNYGEMALP
 OsARF2: QFQDQ-GSARHFSDPYYYV-----SPQPSLTVESSTQMHTDSK--ELHFW

* 620 * 640 * 660
 MNTwt : NGLSTENAGGNWPTRPRALNYEYEVVNAQAQAQAR-EQ--VTKQFTIQE-ETAK
 BnARF2: RAVTTENAAGNWPTRPRALNYEYEAHHAC----AR-EH--VTKRRAVVQE-EAAK
 OsARF2: NGQST--VYENSRDRPQNFREFQNSSSWLNQSFARPEQPRVIRPHASTAPVELEK

* 680 * 700 *
 MNTwt : SREGNCRILFGIPL-NNNM--NETDSTMSQENNN--LNDAAAGITQIASPKVQDLSQD
 BnARF2: PRDGNCRILFGIPL-VNNV--NETDTILSQENNN--LNDPAGPIQMASPKVQDLSQD
 OsARF2: TEGSGFKIDGFKVDITNAPNNHLSSPMAATHEPMLQTESSLNQLQPVQTDCEPEV

720 * 740 * 760 *
 MNTwt : SKGSKSTNDHREQGRPFQTNNEHPKDAQTKTN--SSRSCTKVHKQGTALGRSVDL
 BnARF2: SKGSKSTNDHREQGRPFVSKHHPKDVQTKTN--SCRSC TKVHKQGTALGRSVDL
 OsARF2: SVSTAGTATENEKSG--QQAQSSKDVQSKLOVASTRSC TKVHKQGTALGRSVDL

780 * 800 * 820
 MNTwt : SKFQNYEELVAELDRLEFNGELMAPKKDWLIVYTDEENDMMLVGDDPWQEFCCM
 BnARF2: SKFQNYEELVTELDRLFEFNGELMAPKKDWLIVYTDEENDMMLVGDDPWQEFCCM
 OsARF2: SKFSNYDELKAEIDKMFEDGELVSSNKNWQIVYTDEGDMMLVGDDPWQEFCCSI

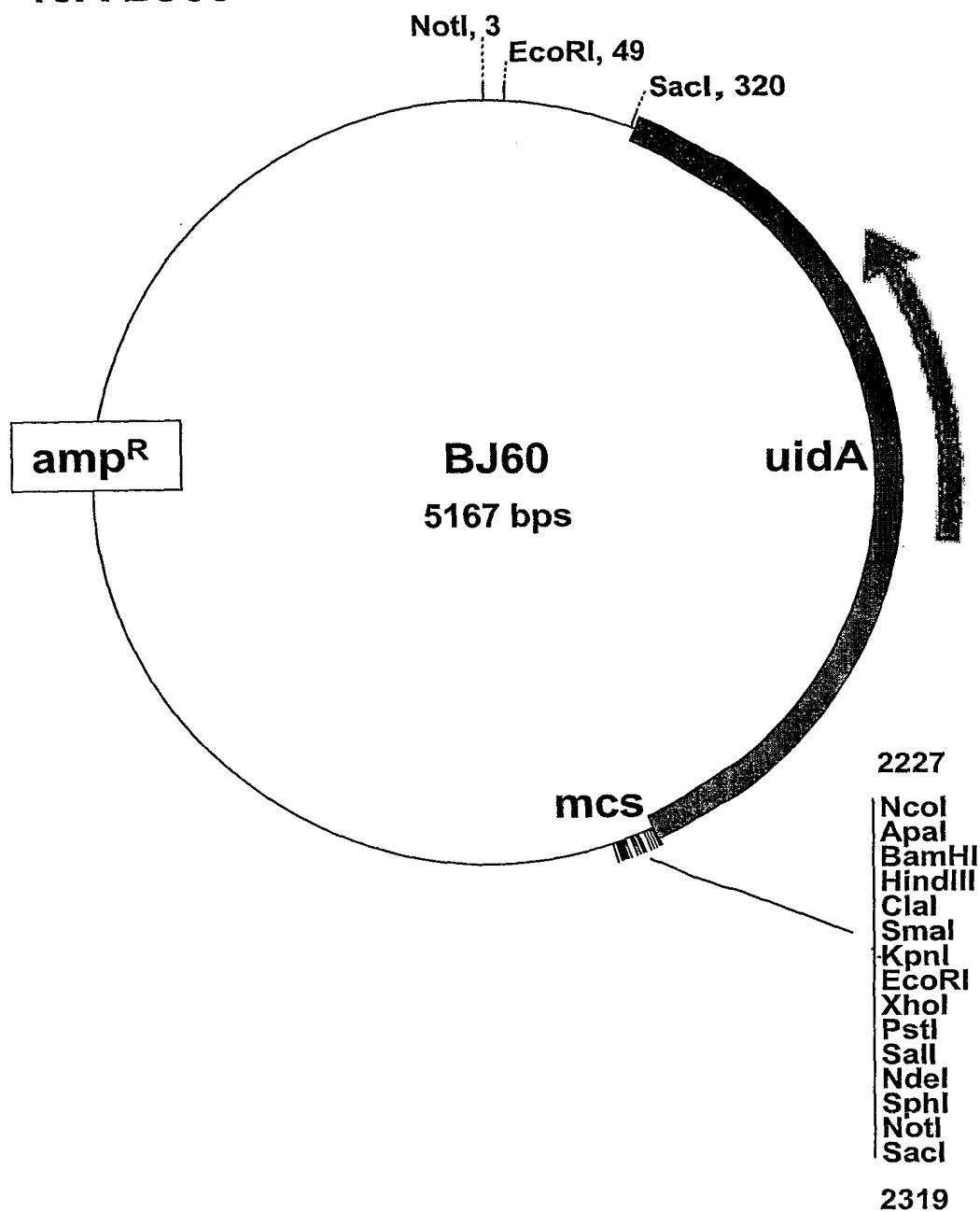
* 840 * 860 *
 MNTwt : VRKIFLYTKEEVKMNPCTLSQRSEEEAVVGGGSDAKDAKSASNPSSSAGNS
 BnARF2: VRKIFLYTKEEVKMNPCTLCCRNNEEPPVGGGSDAKDAKSASNPSSSAGNS
 OsARF2: VRKITLYTKEEVQKMNKSNAPRKD-----DSSENEKGHLPMMPNKSDN-

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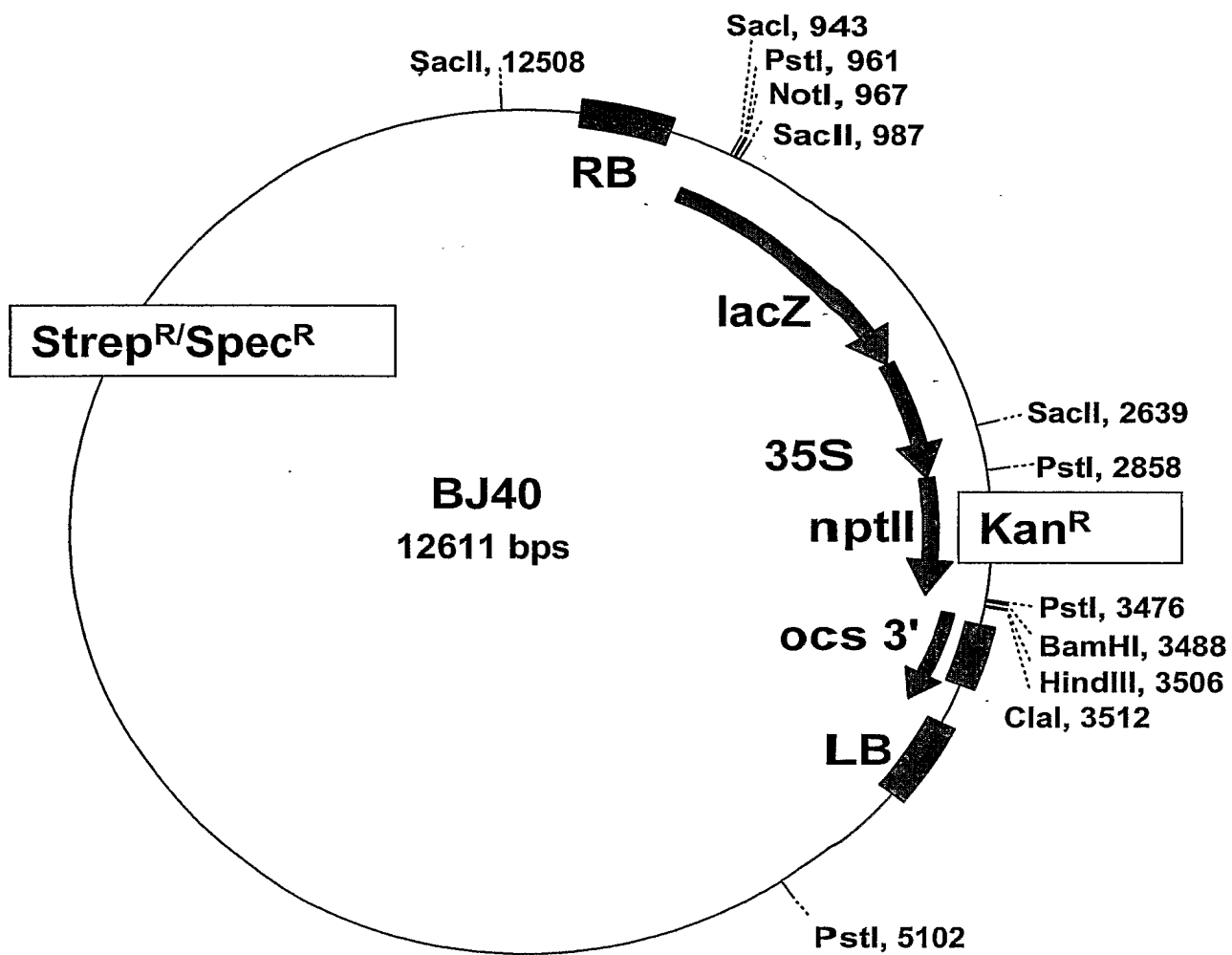
Figure 10

Vectors used for cloning

10A BJ60

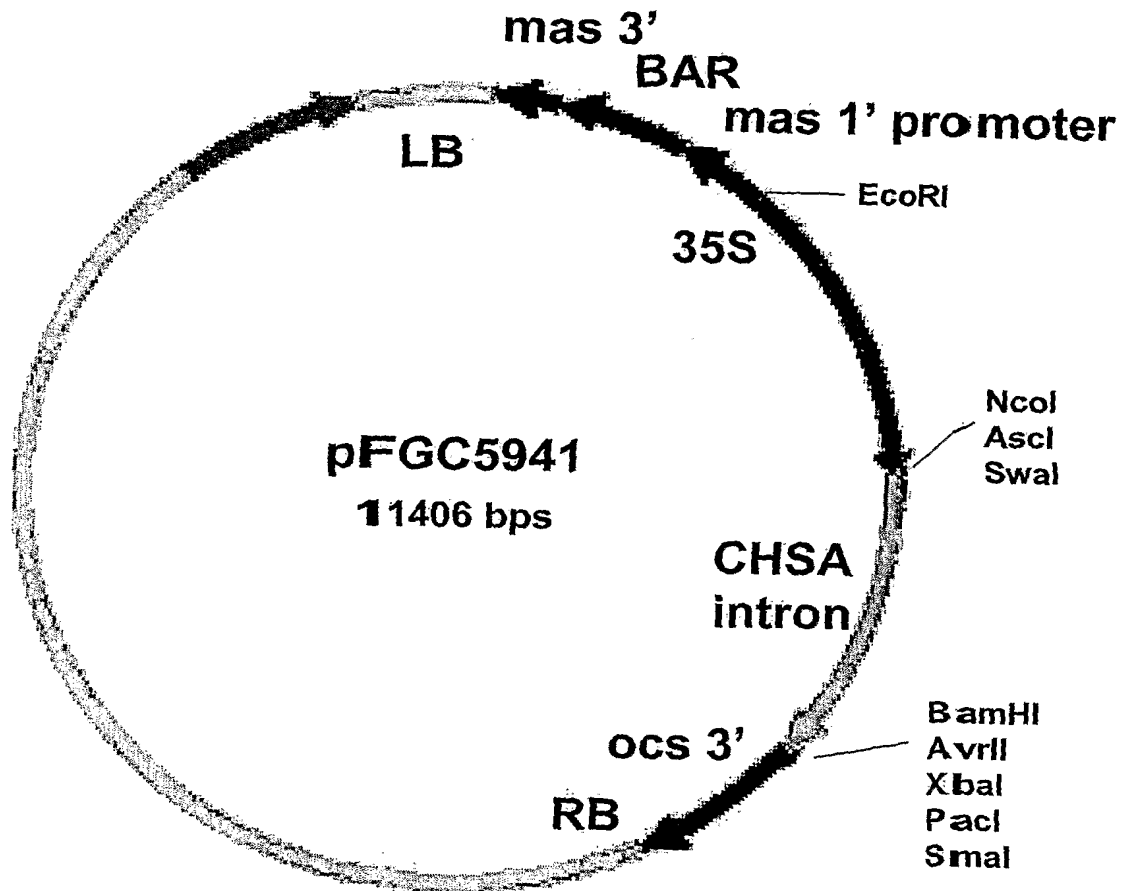


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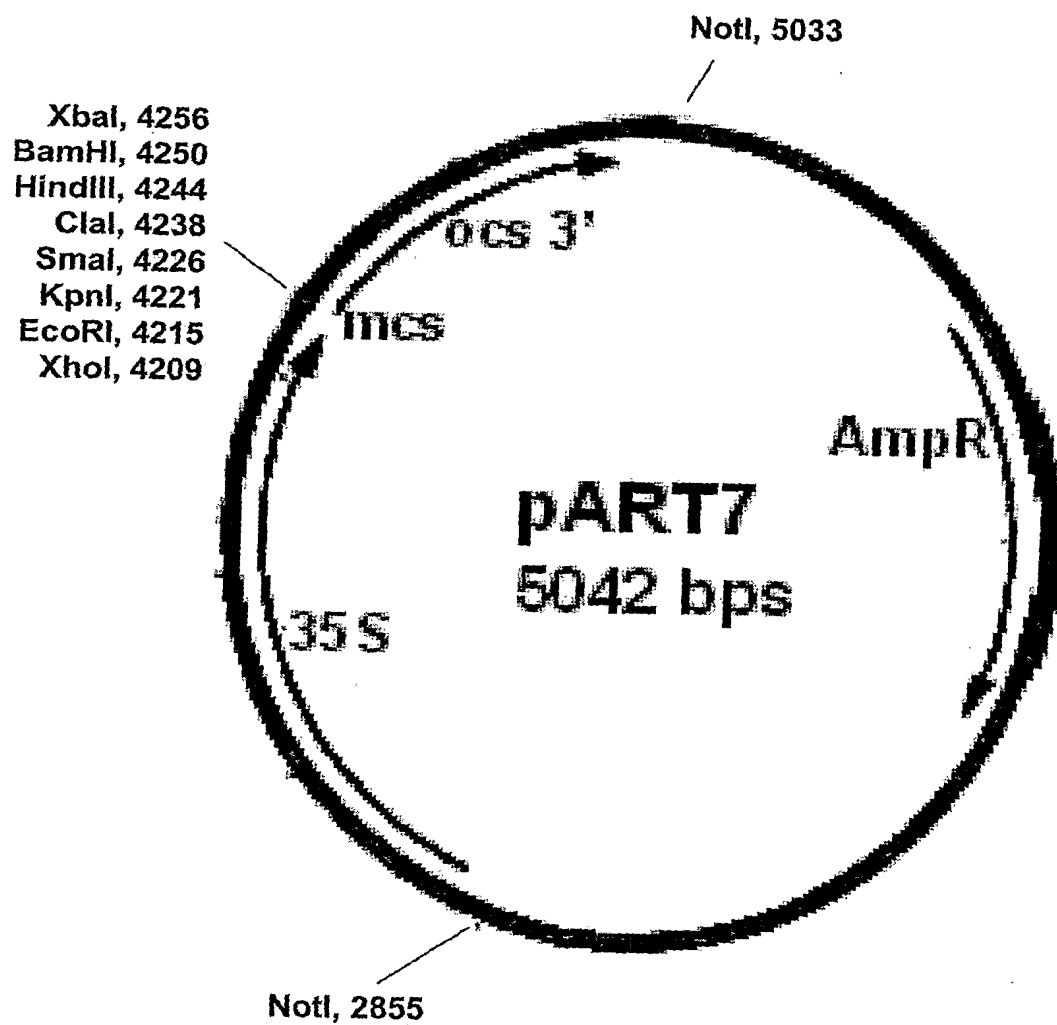
10B BJ40

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10C pFGC5941



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10D pART7

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0E BJ36

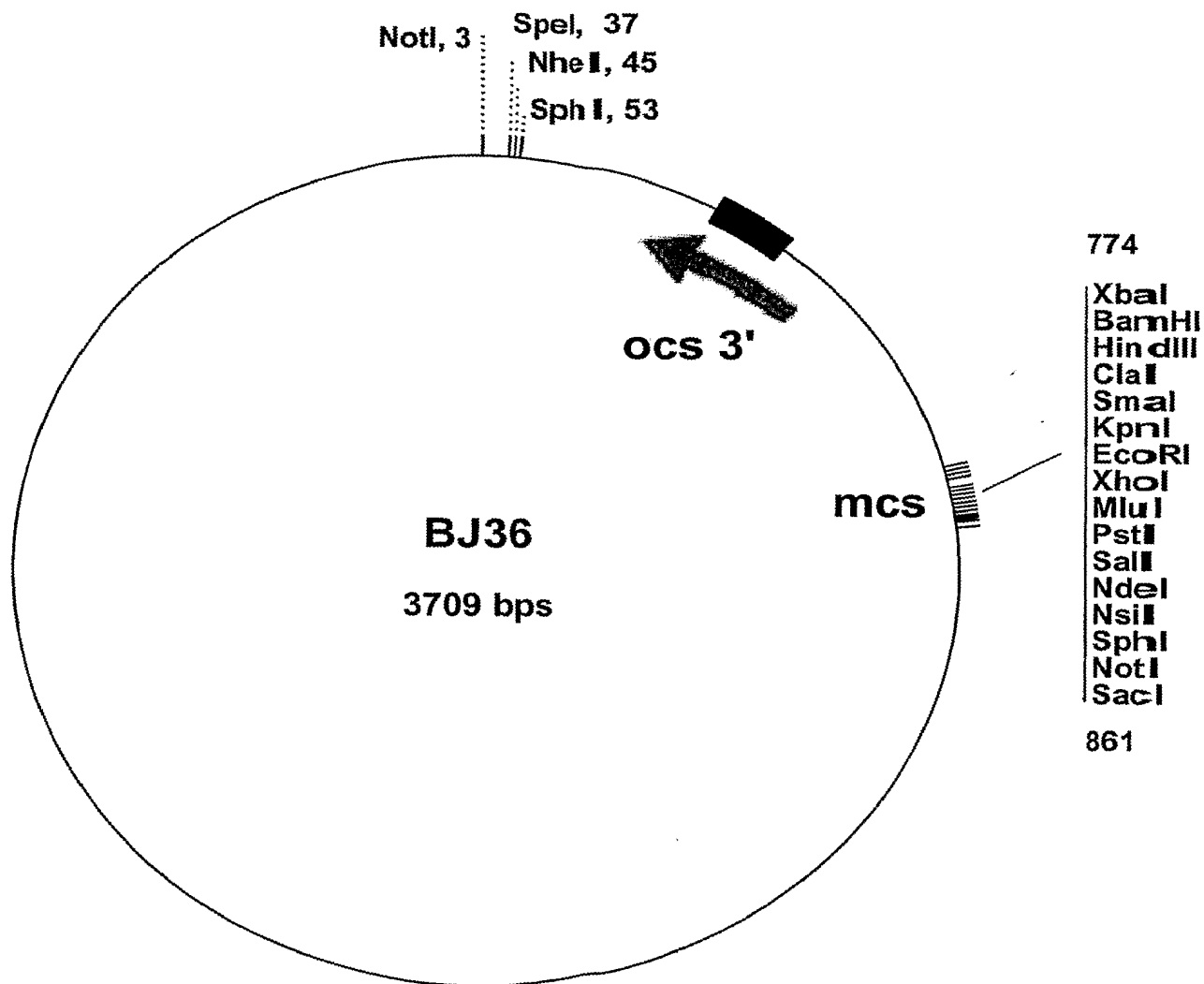
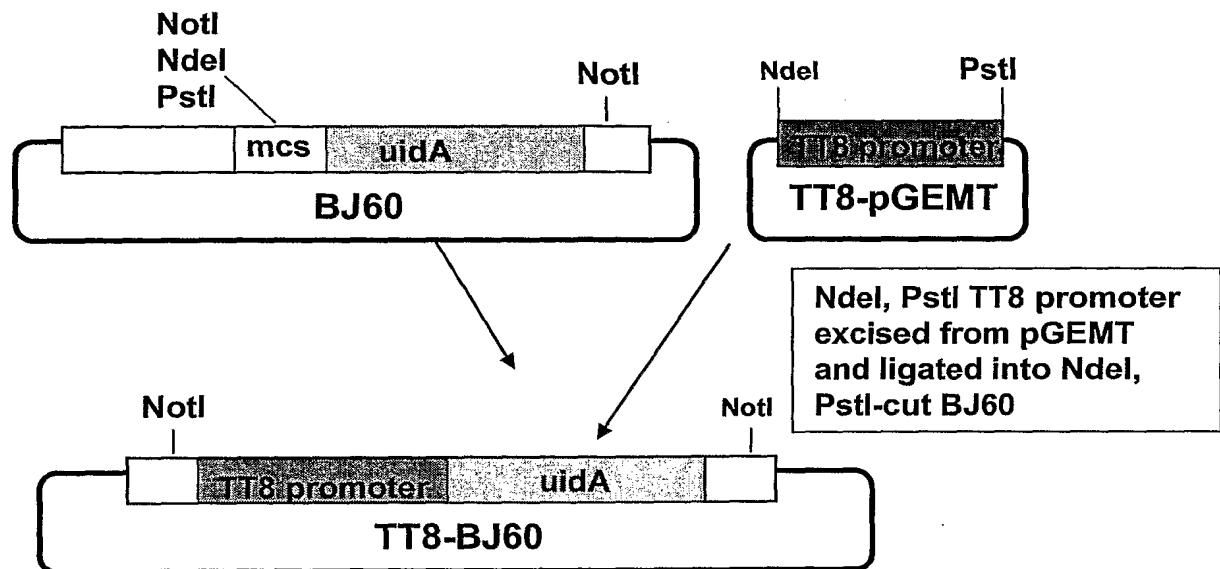


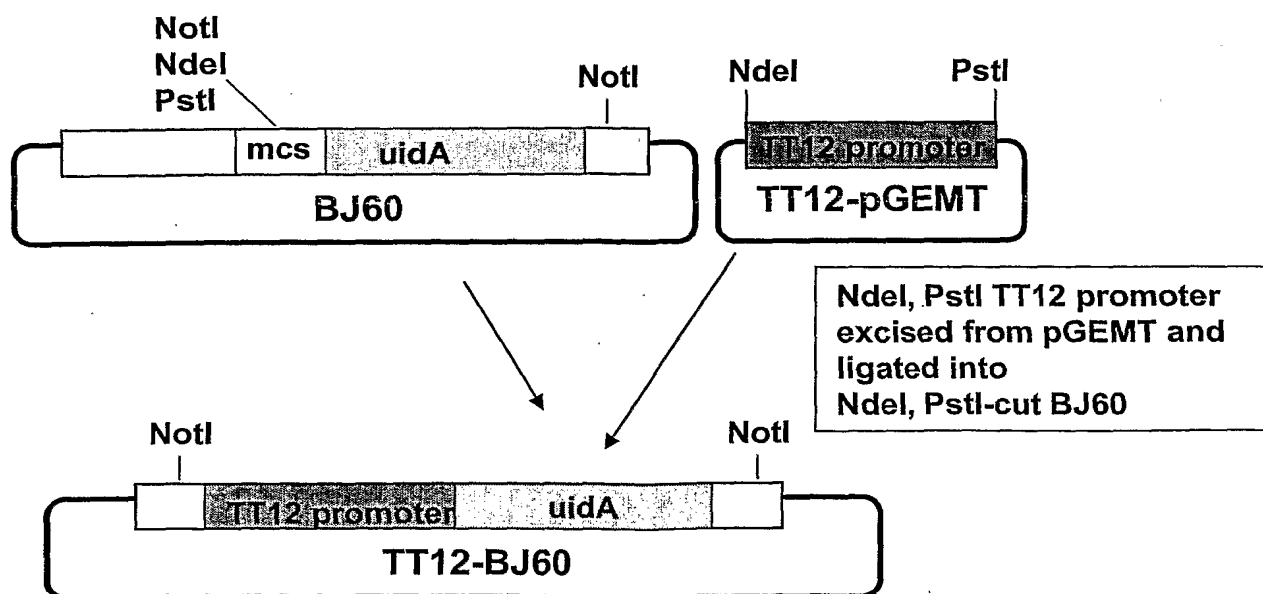
Figure 11

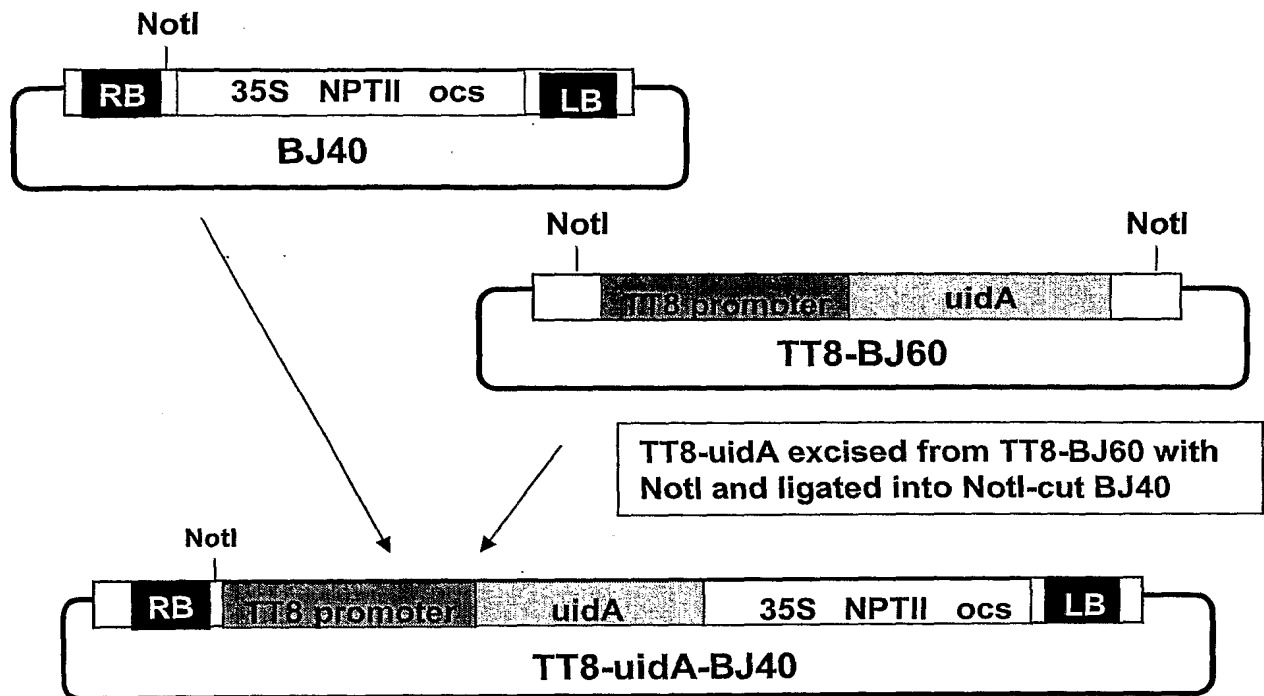
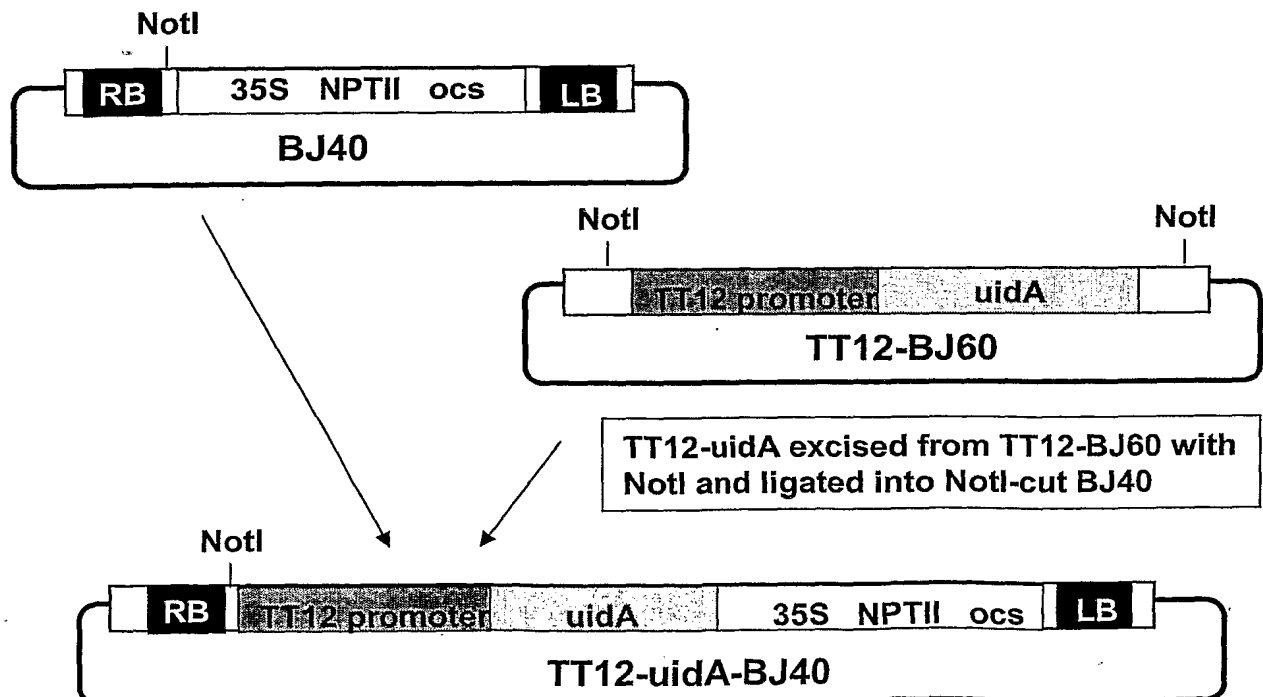
Cloning strategy, Example 3

Example 3a(i)



Example 3a(ii)



Example 3b(i)**Example 3b(ii)**

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Figure12

TT12::uidA



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Figure 13A

Cloning strategy, Example 4

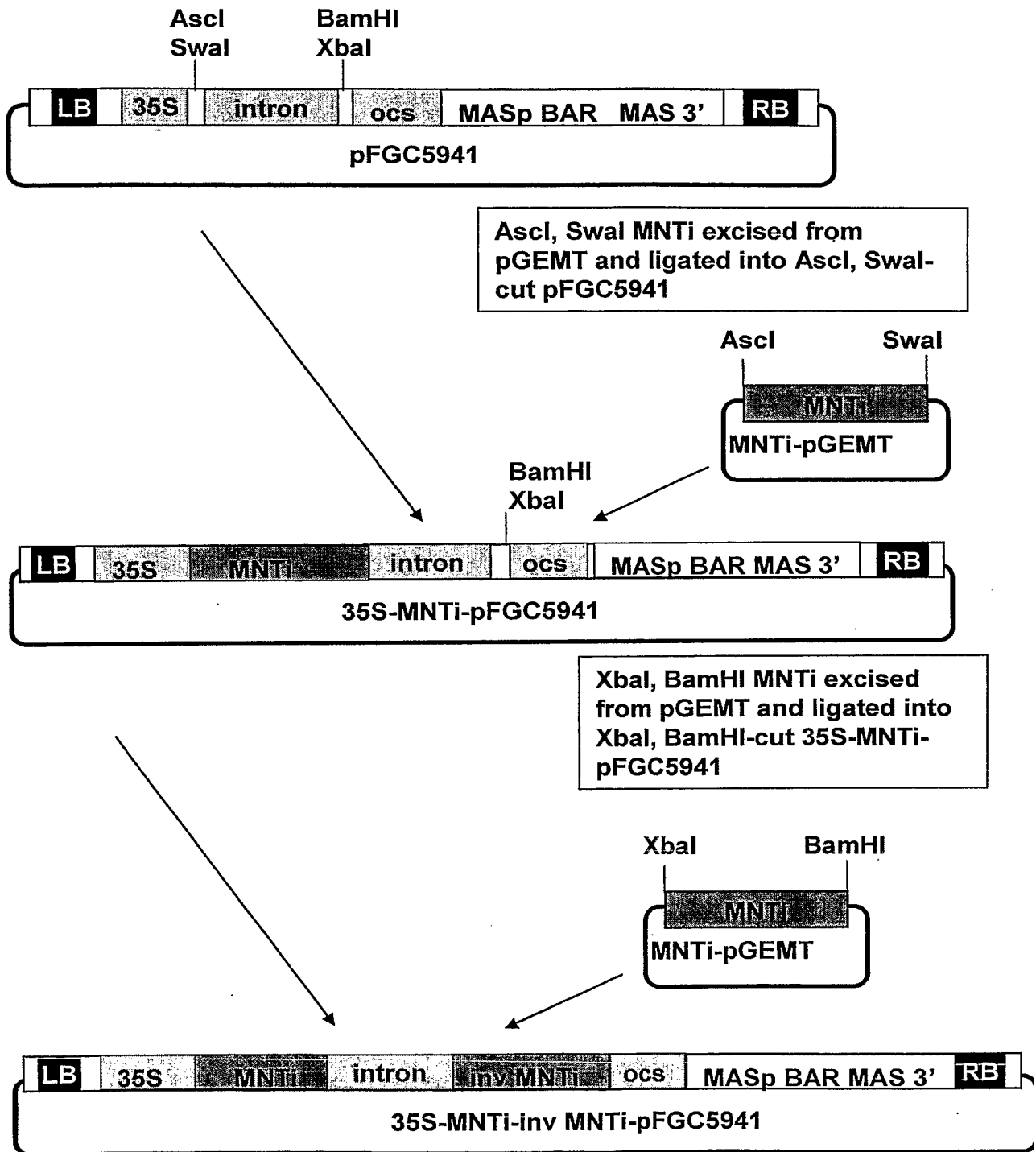
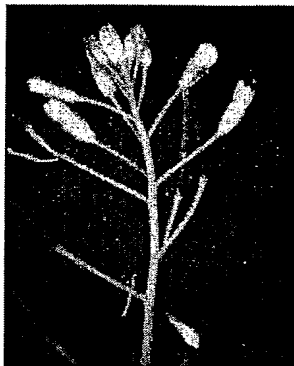


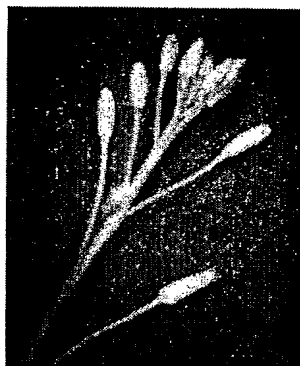
Figure 13B

Plants transformed with the *35S::MNT* RNAi vector
Example 4

Primary inflorescence

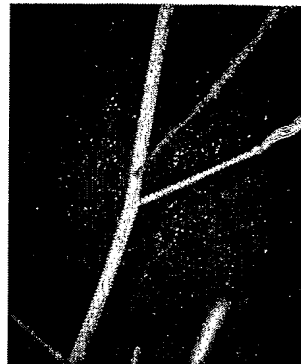


wild-type Col-3

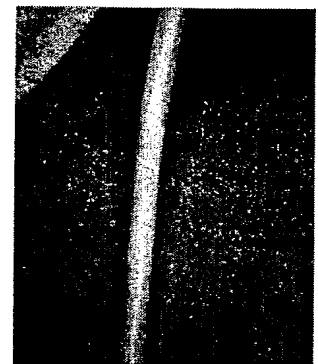


35S::MNT RNAi
line 3

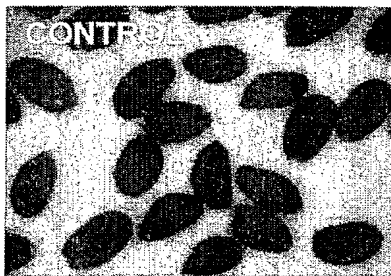
Primary inflorescence stem



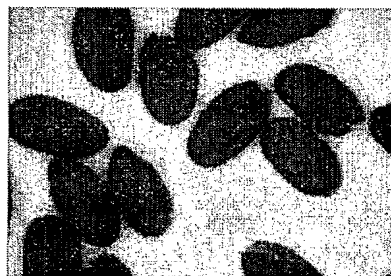
wild-type Col-3



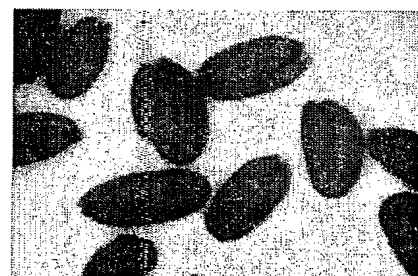
35S::MNT RNAi
line 3



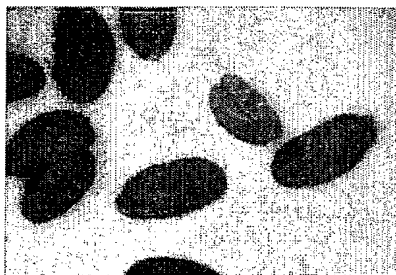
wild-type Col-3
mean wt 13.8 μ g



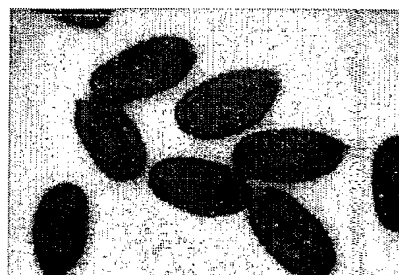
35S::MNT RNAi line 1
mean wt 34.0 μ g



35S::MNT RNAi line 2
mean wt 35.6 μ g



35S::MNT RNAi line 3
mean wt 34.8 μ g

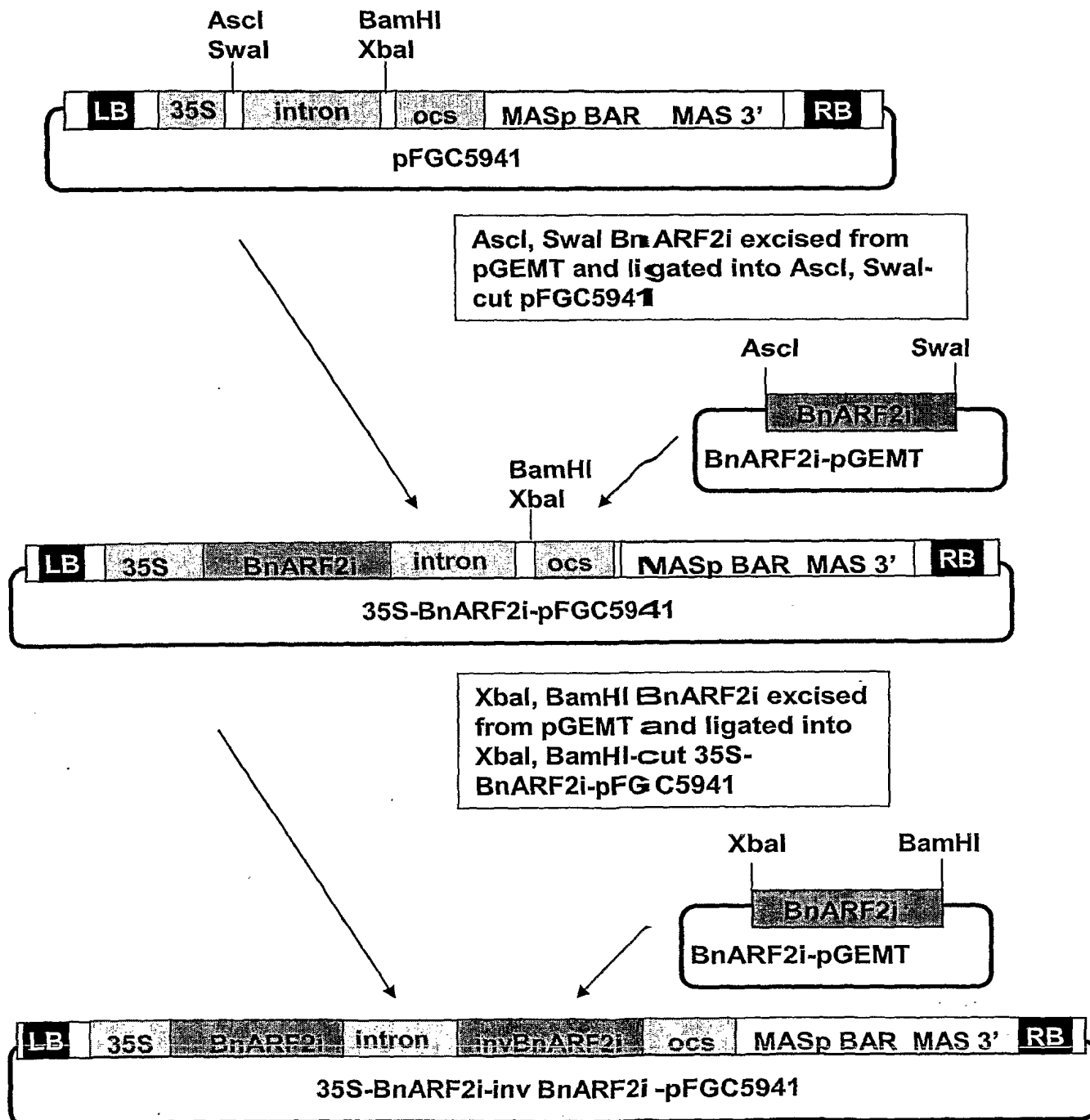


35S::MNT RNAi line 4
mean wt 36.7 μ g

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Figure 14

Cloning strategy, Example 5

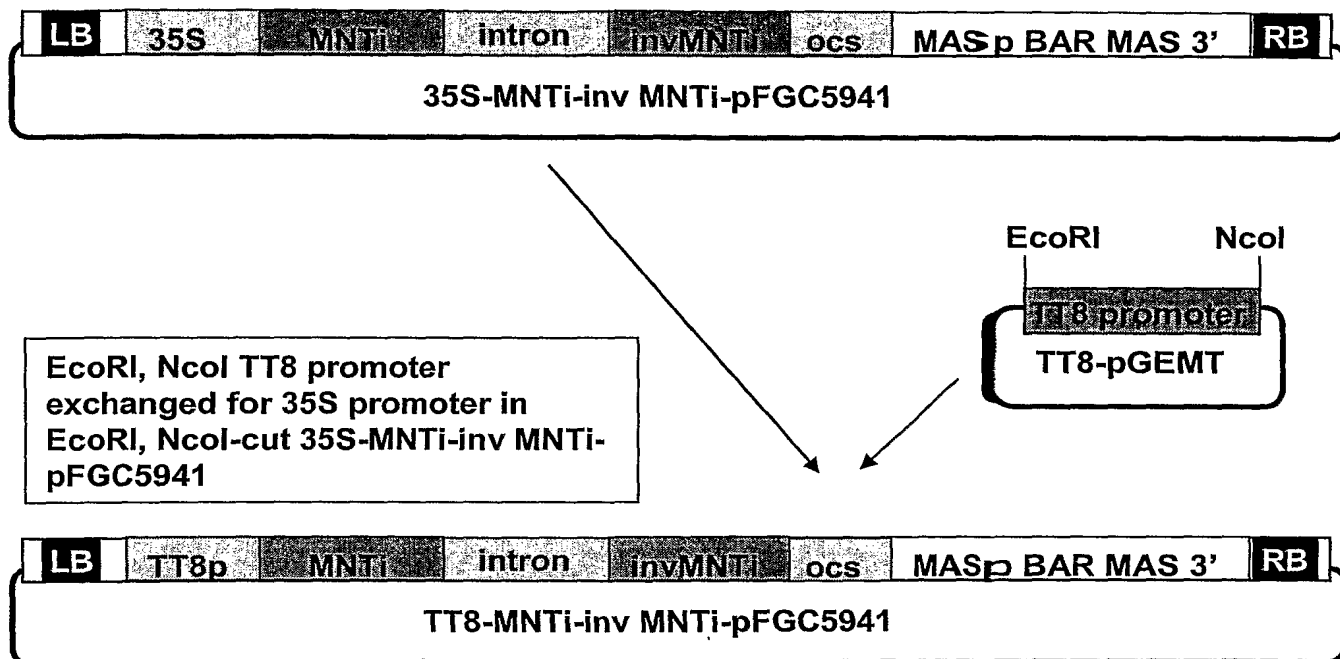


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Figure 15

Cloning strategy, Example 6

Example 6a(i)



Example 6a(ii)

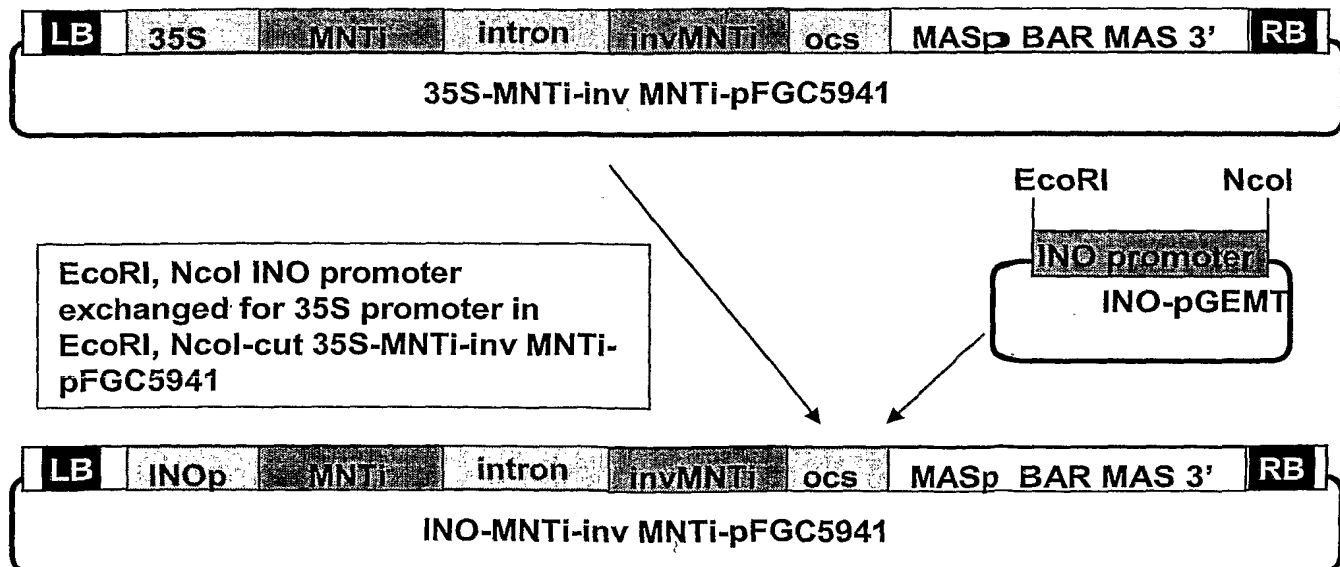
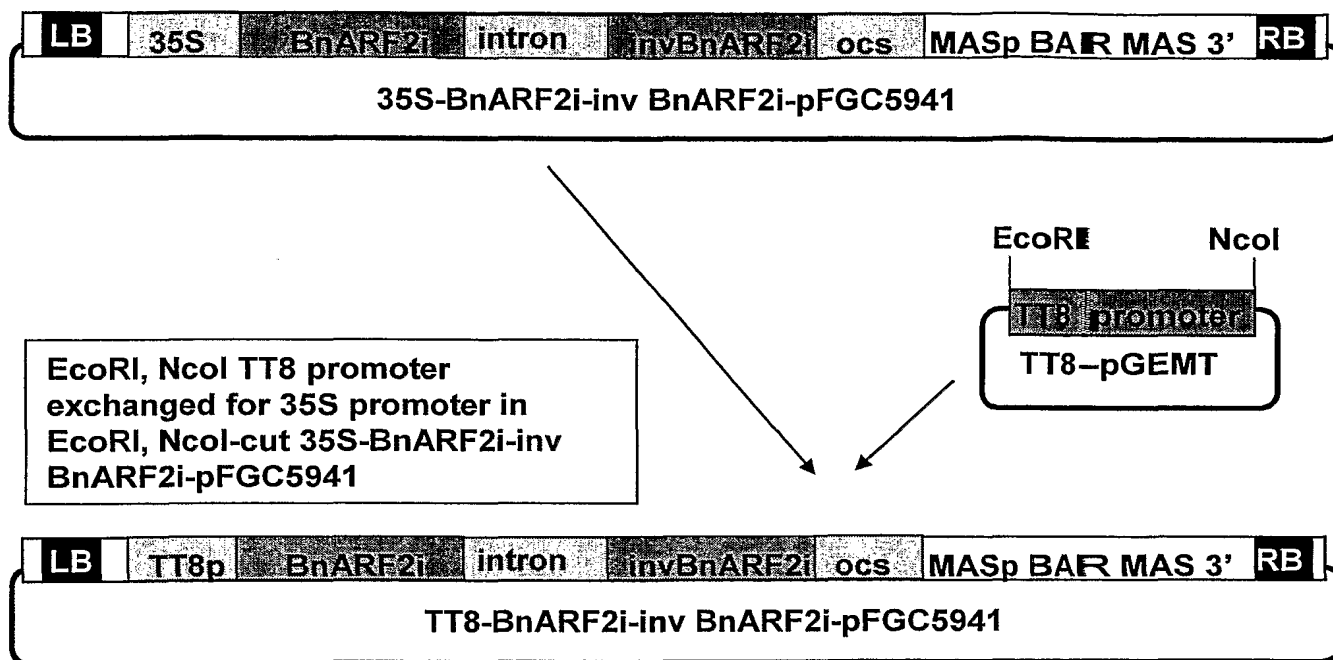


Figure 16

Cloning strategy, Example 7

Example 7a(i)



Example 7a(ii)

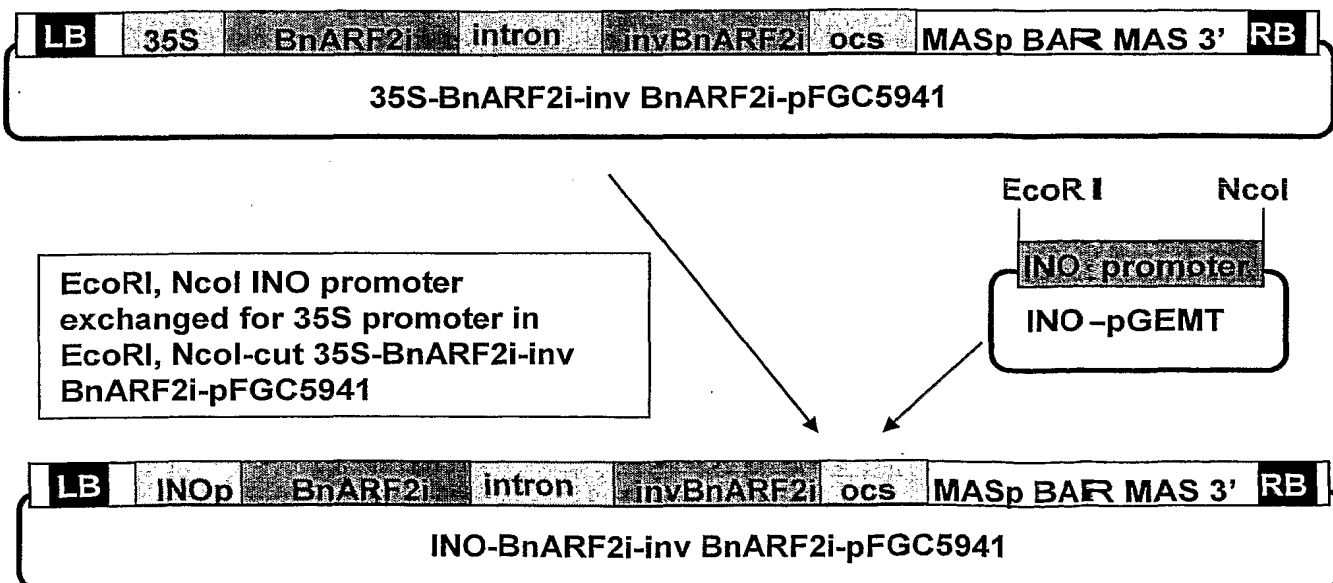
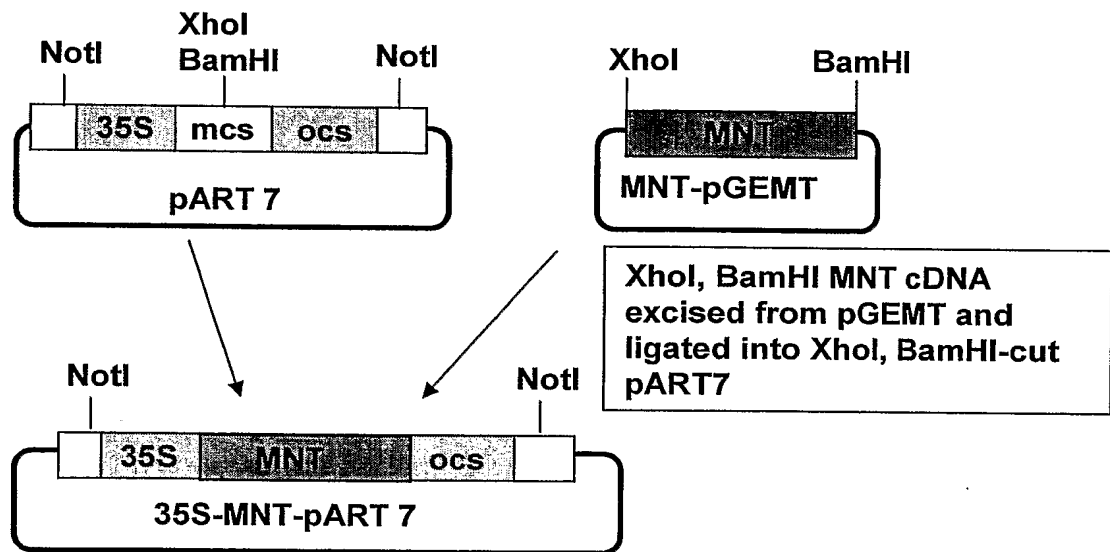


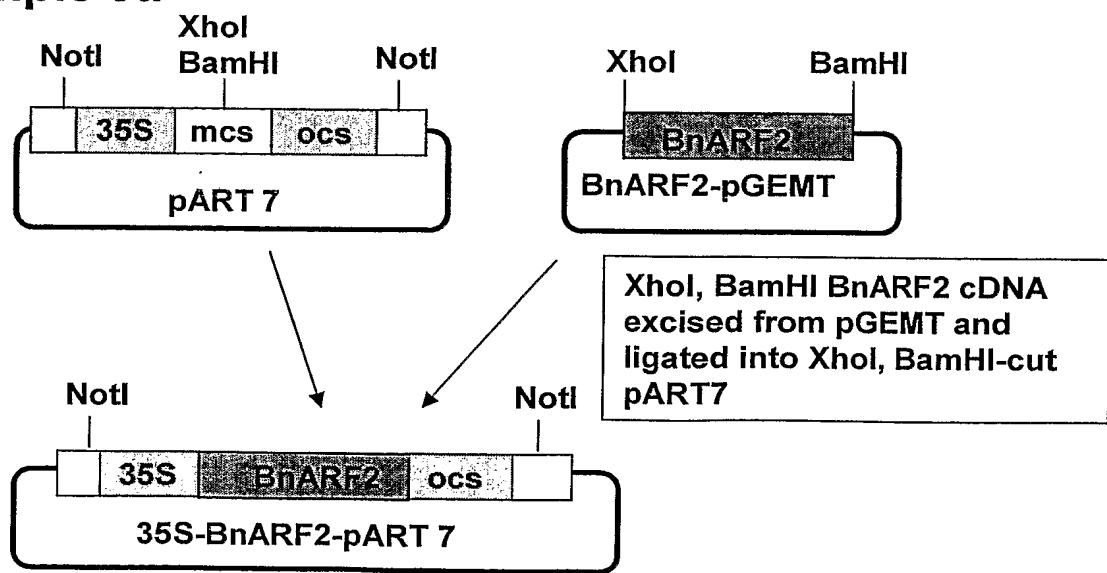
Figure 17A

Cloning strategy, Examples 8, 9

Example 8a



Example 9a



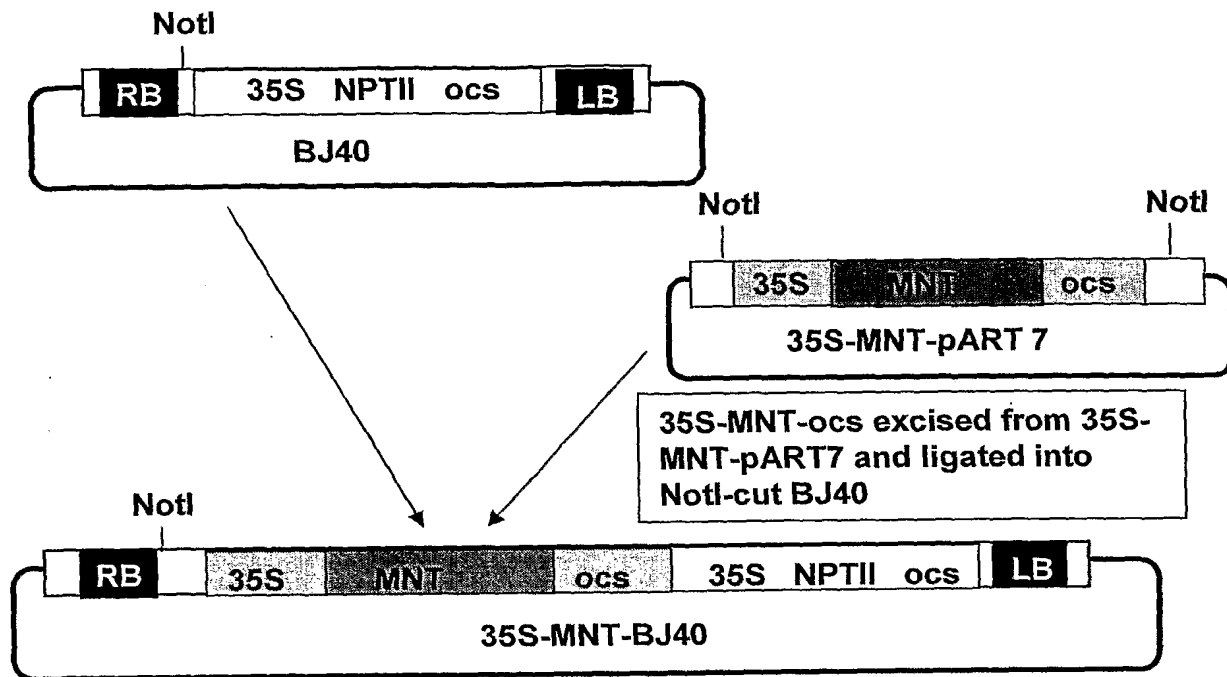
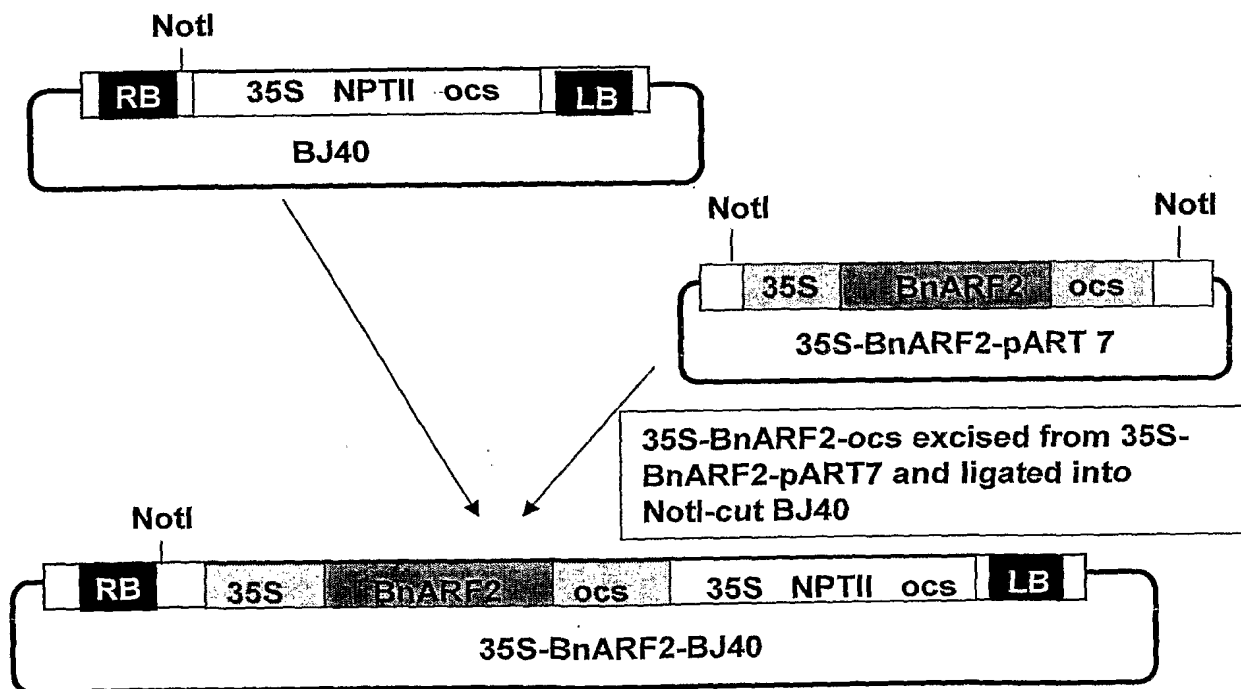
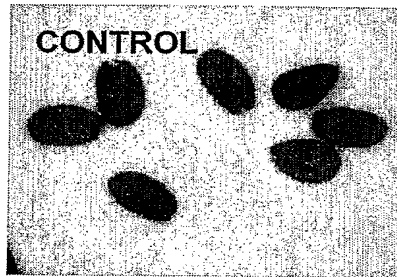
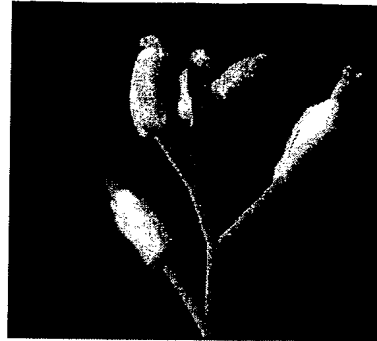
Example 8b**Example 9b**

Figure 17B

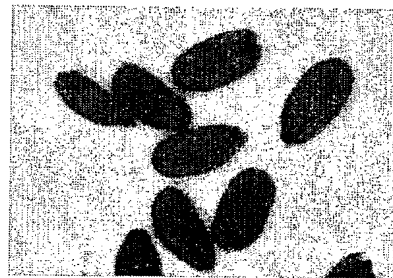
Analysis of wild-type plants transformed with the *35S::MNT* vector

Example 8

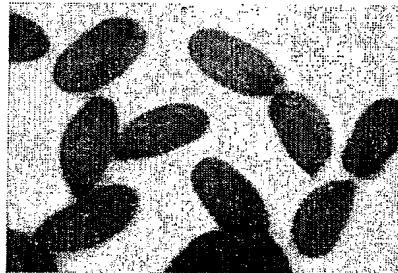
35S::MNT



wild-type Col-3
mean wt 15.0 μ g



35S::MNT line 1
mean wt 23.1 μ g



35S::MNT line 2
mean wt 28.7 μ g



35S::MNT line 3
mean wt 24.6 μ g

Semiquantitative RT-PCR

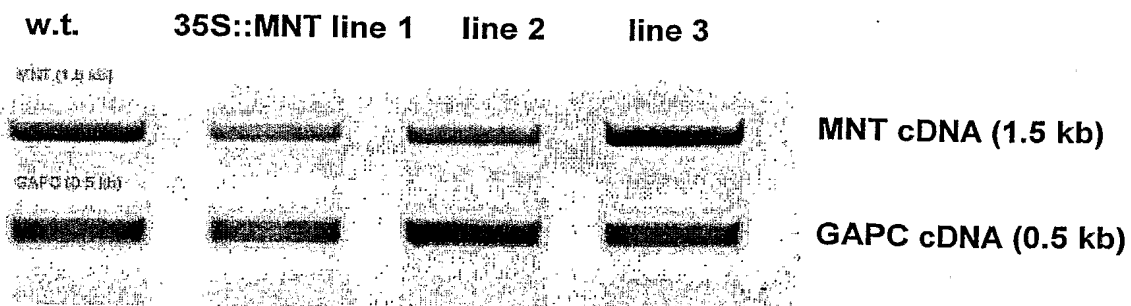
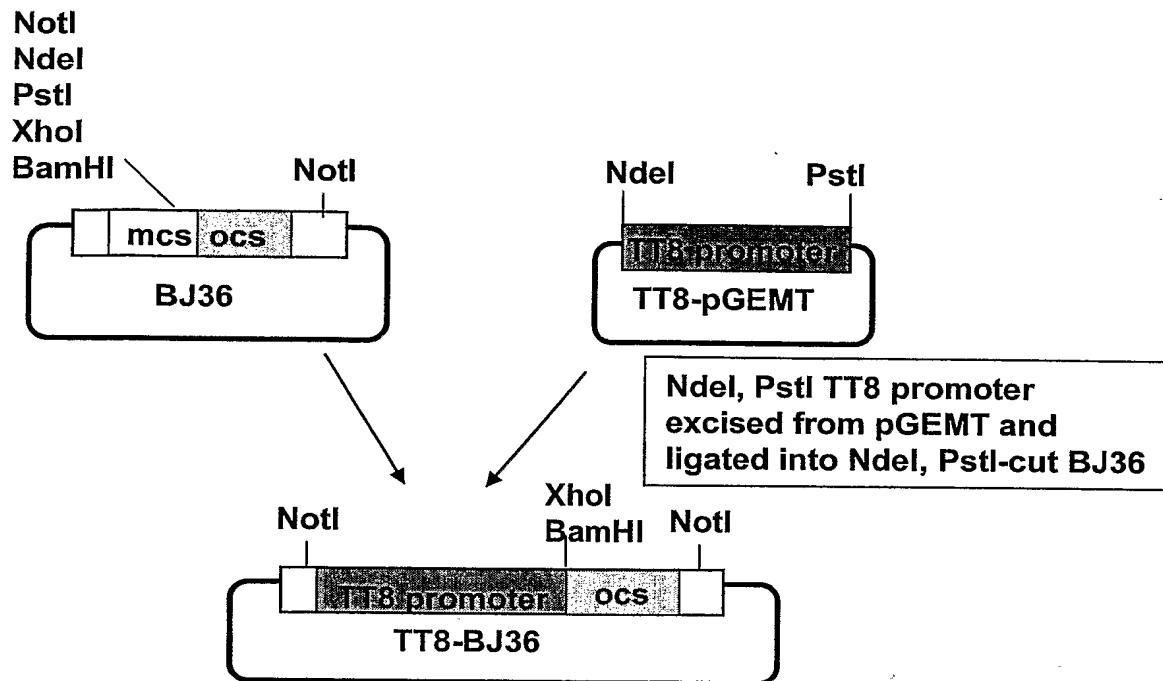


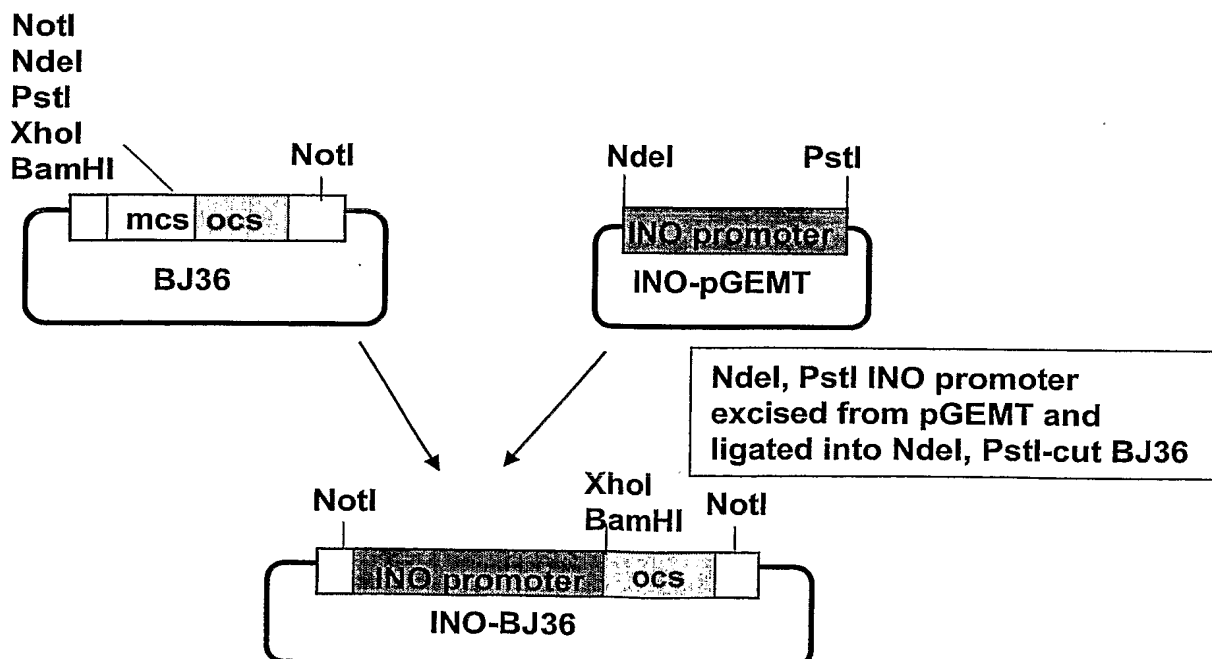
Figure 18

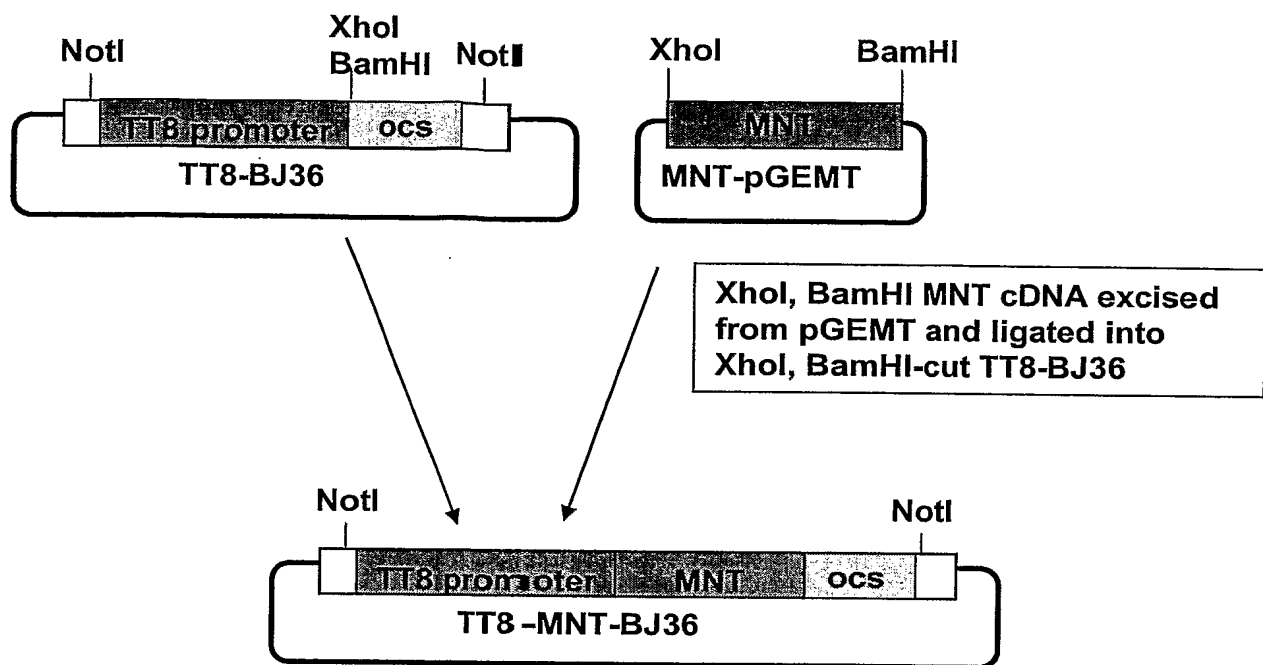
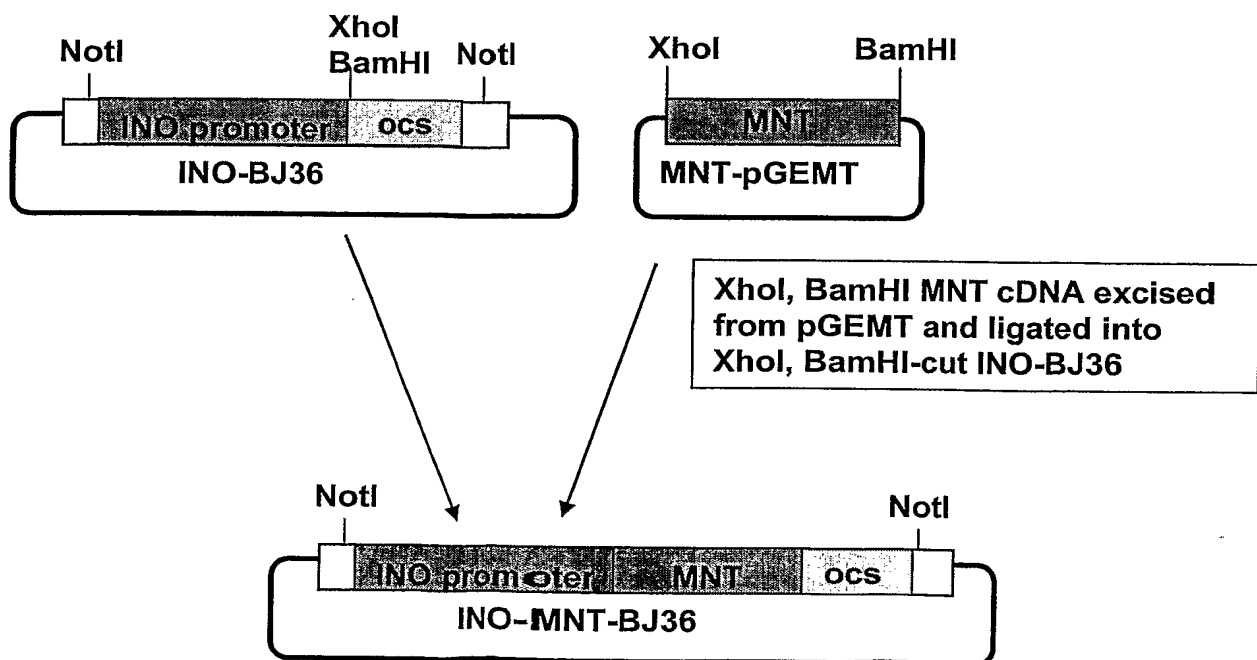
Cloning strategy, Example 10

Example 10a(i)



Example 10a(ii)



Example 10b(i)**Example 10b(ii)**

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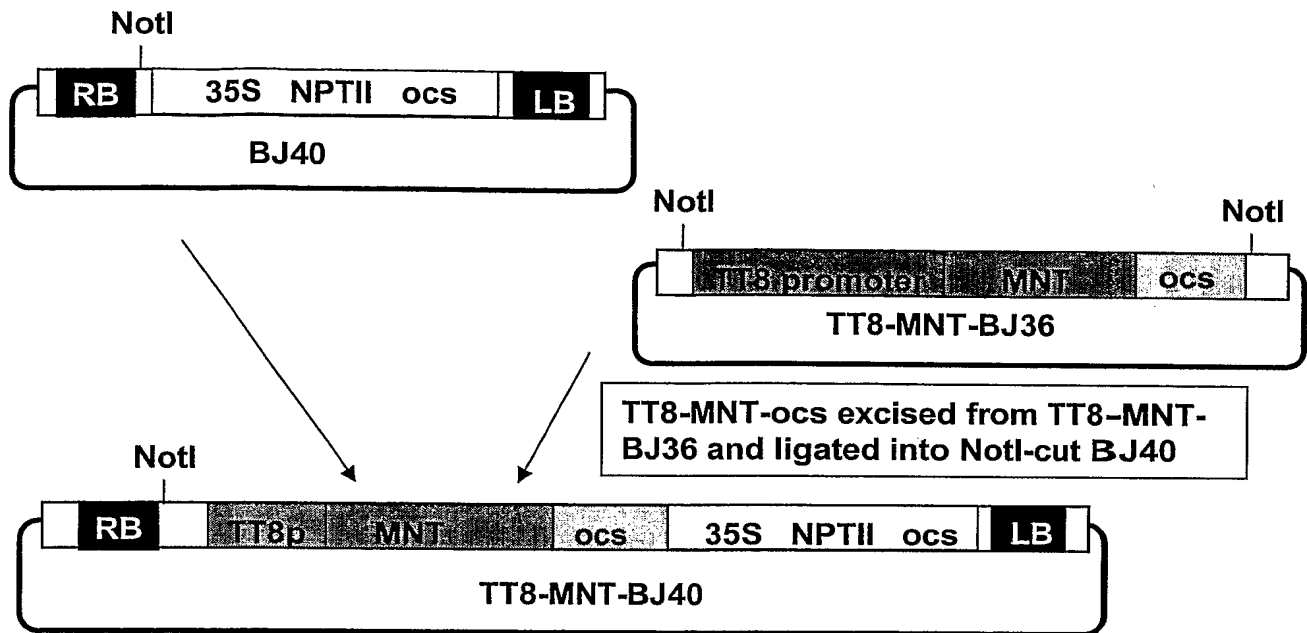
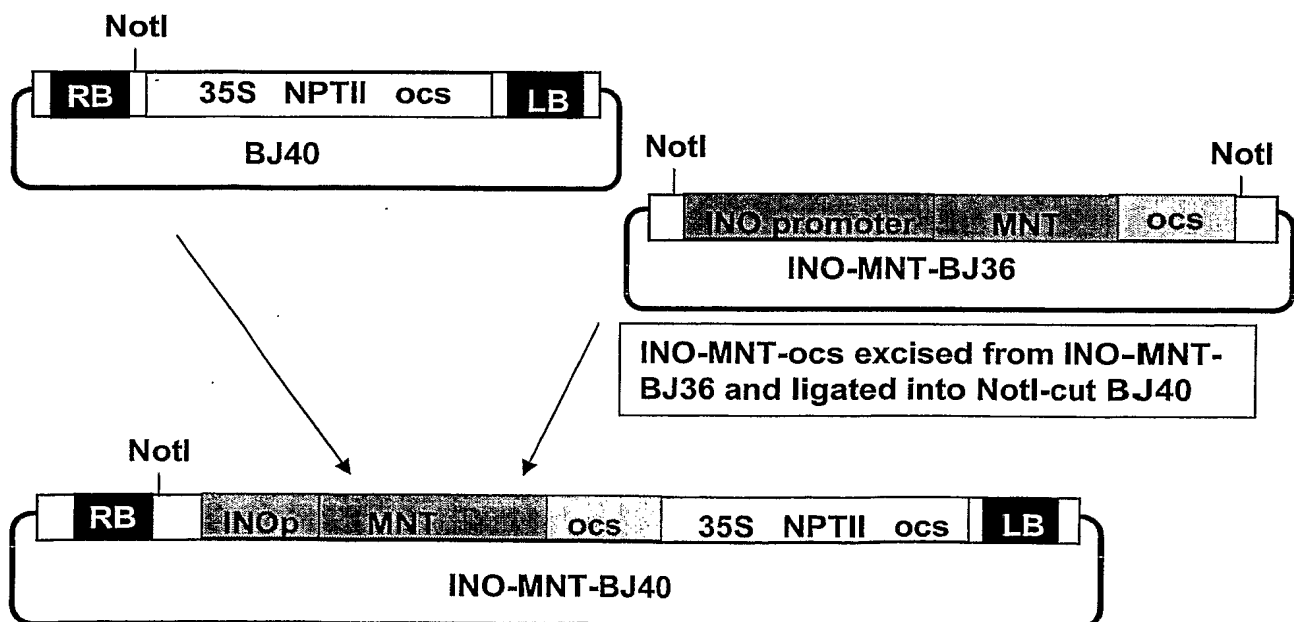
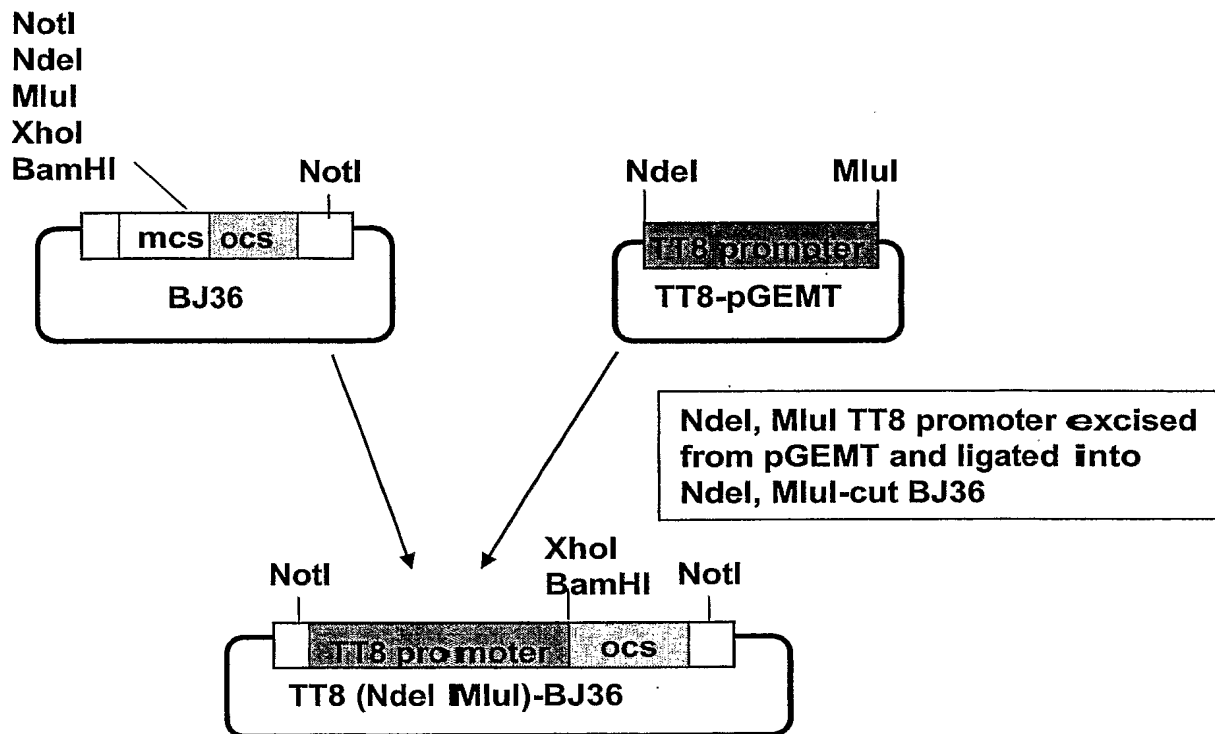
Example 10c(i)**Example 10c(ii)**

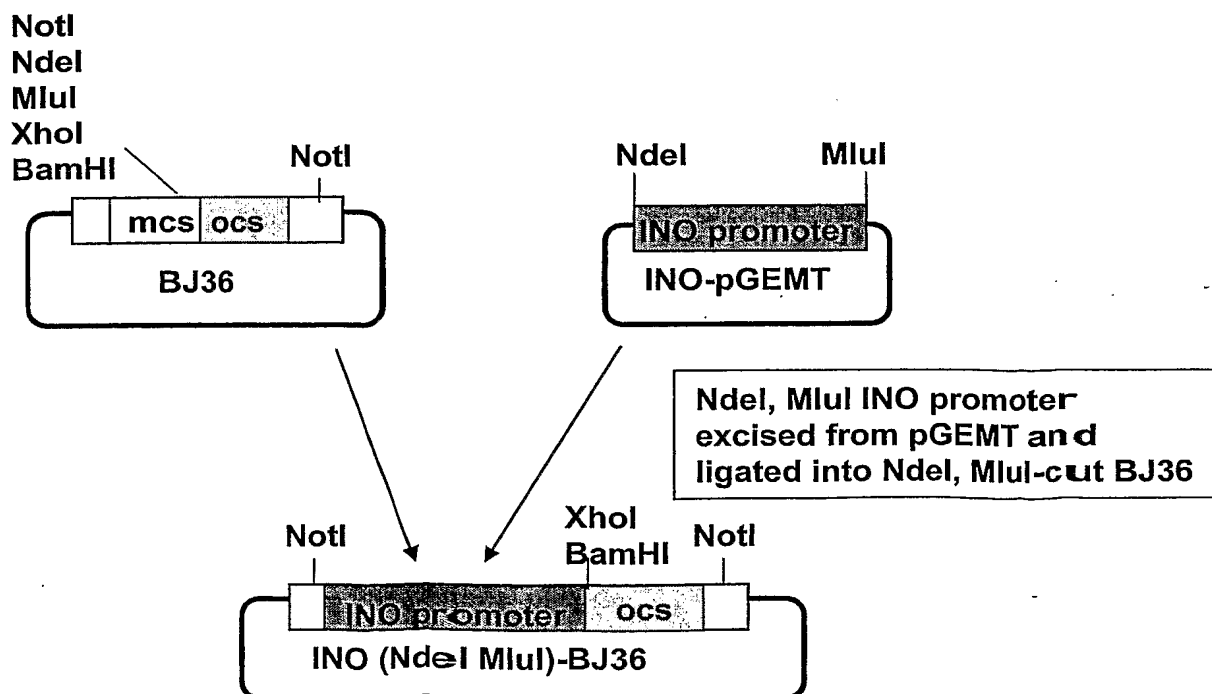
Figure 19

Cloning strategy, Example 11

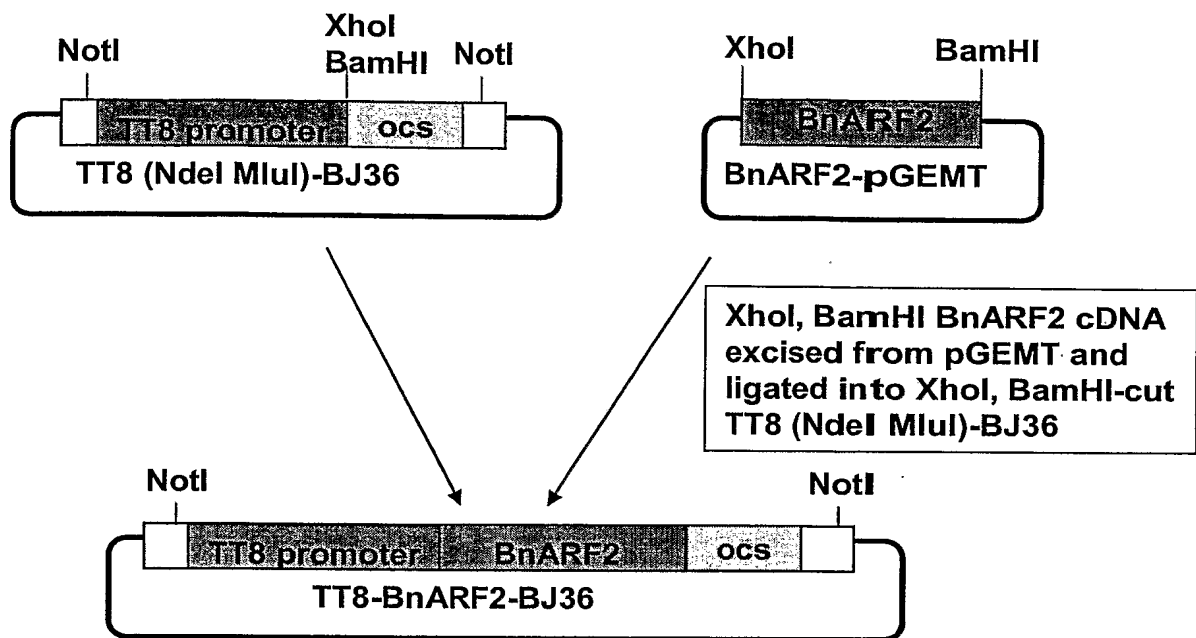
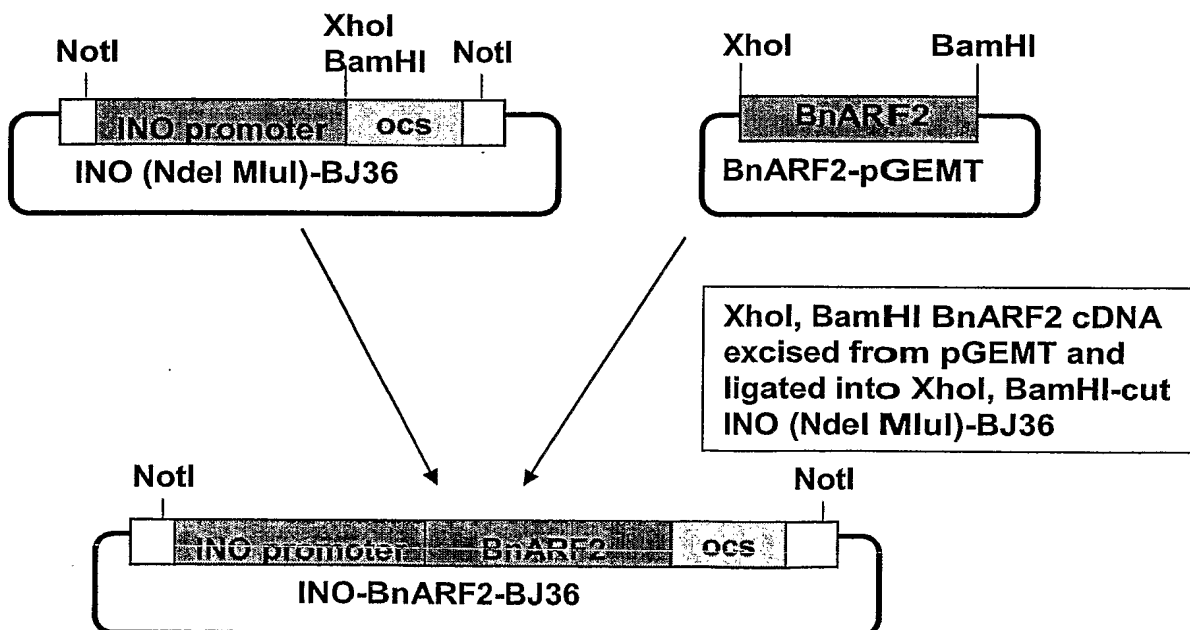
Example 11a(i)



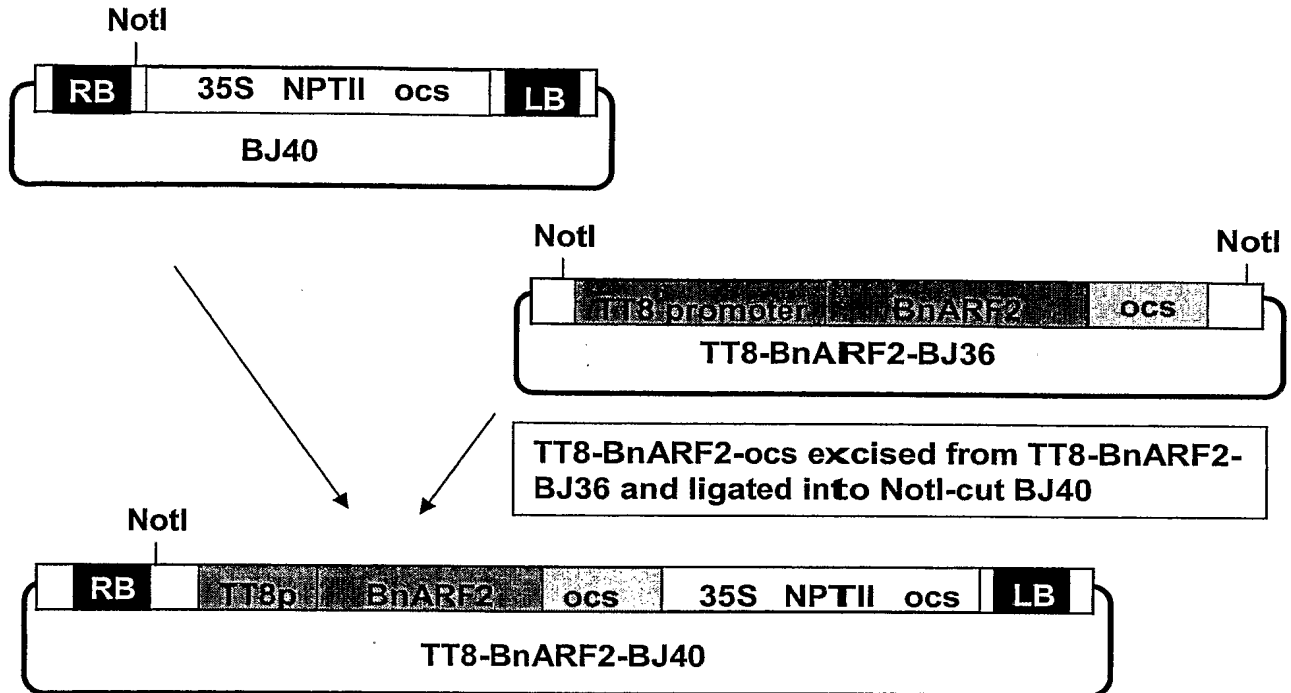
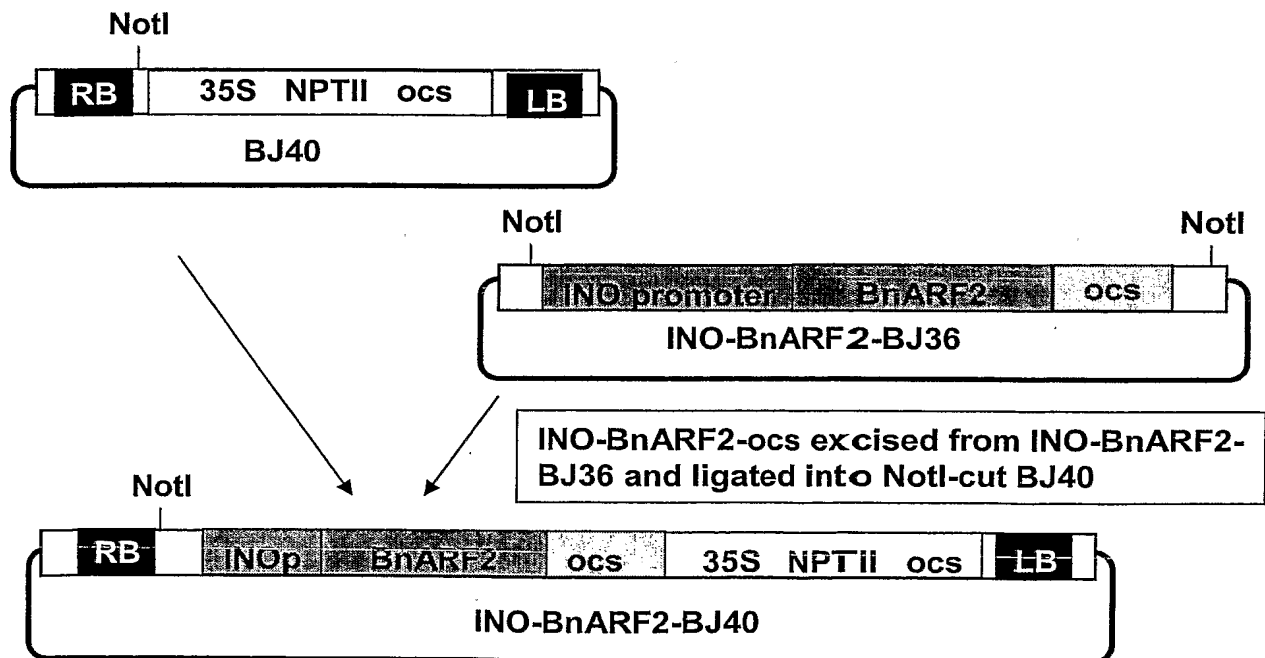
Example 11a(ii)



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Example 11b(i)**Example 11b(ii)**

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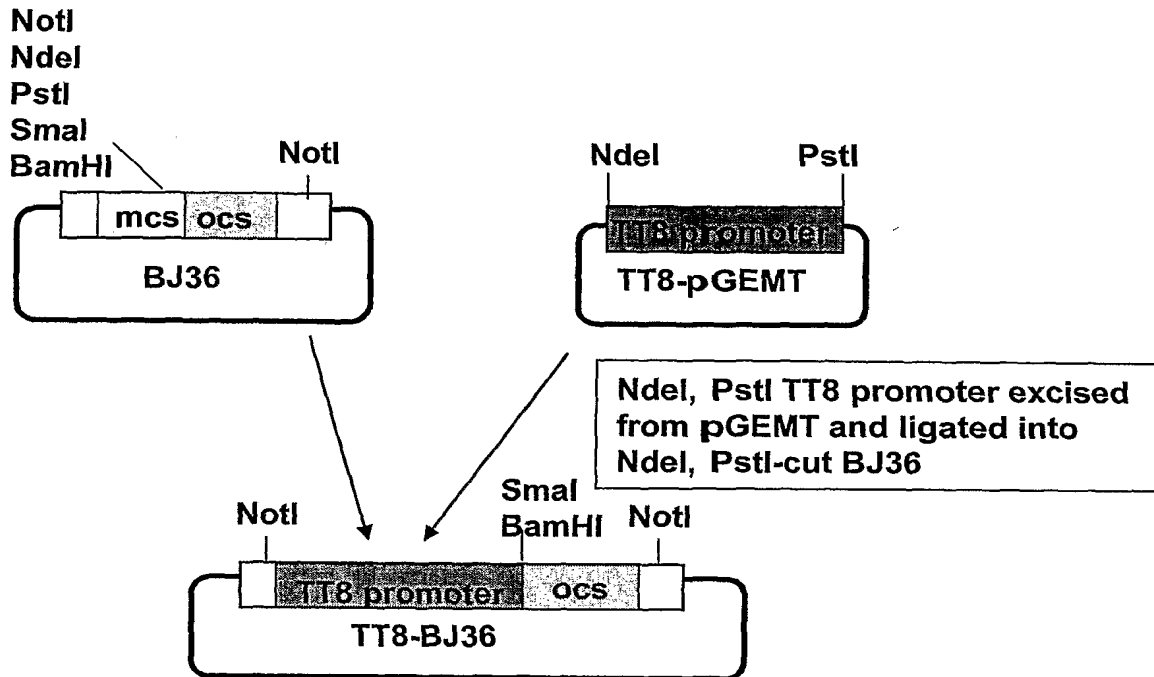
Example 11c(i)**Example 11c(ii)**

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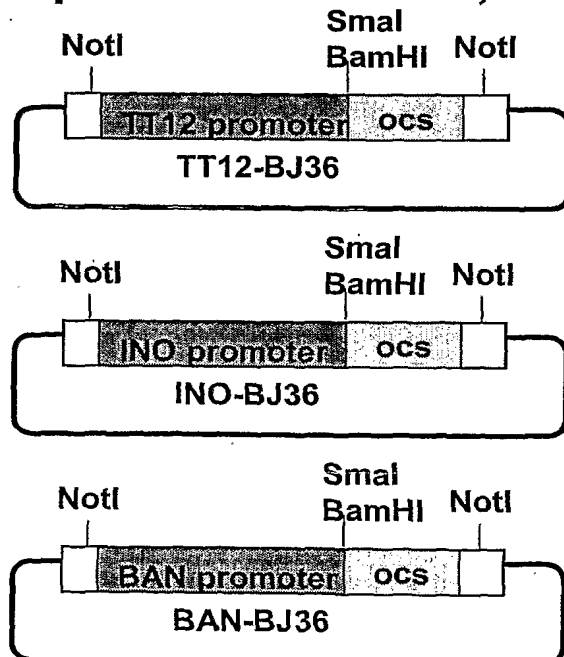
Figure 20

Cloning strategy, Examples 12, 13

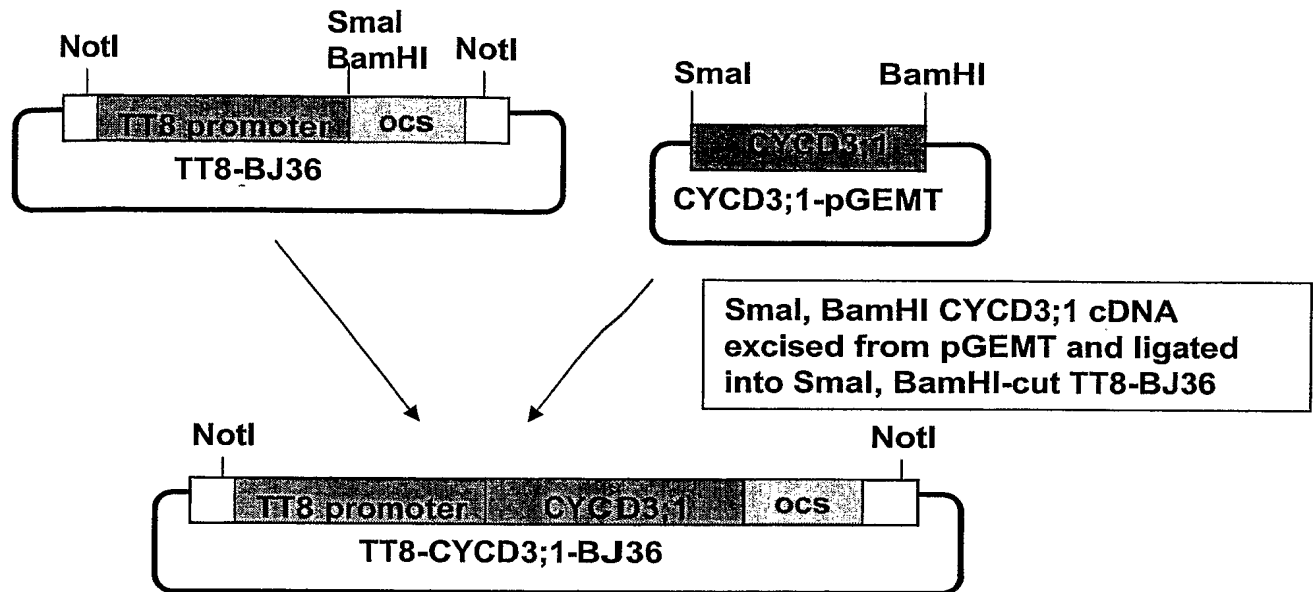
Examples 12a, 13a



Repeat process with TT12, INO, BAN promoters



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Examples 12b, 13b

Repeat process with IPT1, ANT, CYCB1;1 cDNAs and TT12, INO, BAN promoters

TT8-IPT1-BJ40

INO-CYCD3;1-BJ40

TT8-ANT-BJ40

INO-IPT1-BJ40

TT8-CYCB1;1-BJ40

INO-ANT-BJ40

TT12-CYCD3;1-BJ40

INO-CYCB1;1-BJ40

TT12-IPT1-BJ40

BAN-CYCD3;1-BJ40

TT12-ANT-BJ40

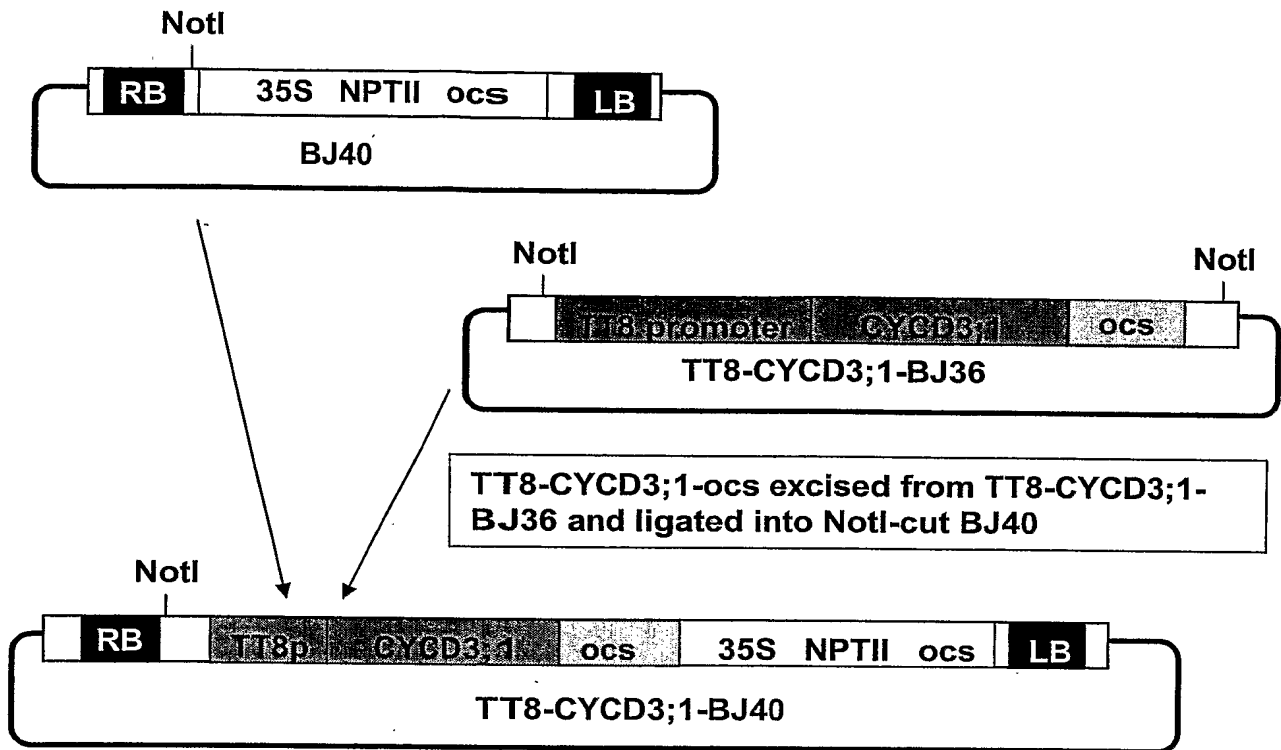
BAN-IPT1-BJ40

TT12-CYCB1;1-BJ40

BAN-ANT-BJ40

BAN-CYCB1;1-BJ40

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Example 12c, 13c

Repeat process with all BJ36 constructs shown in Example 12b

TT8-IPT1-BJ40

INO-CYCD3;1-BJ40

TT8-ANT-BJ40

INO-IPT1-BJ40

TT8-CYCB1;1-BJ40

INO-ANT-BJ40

TT12-CYCD3;1-BJ40

INO-CYCB1;1-BJ40

TT12-IPT1-BJ40

BAN-CYCD3;1-BJ40

TT12-ANT-BJ40

BAN-IPT1-BJ40

TT12-CYCB1;1-BJ40

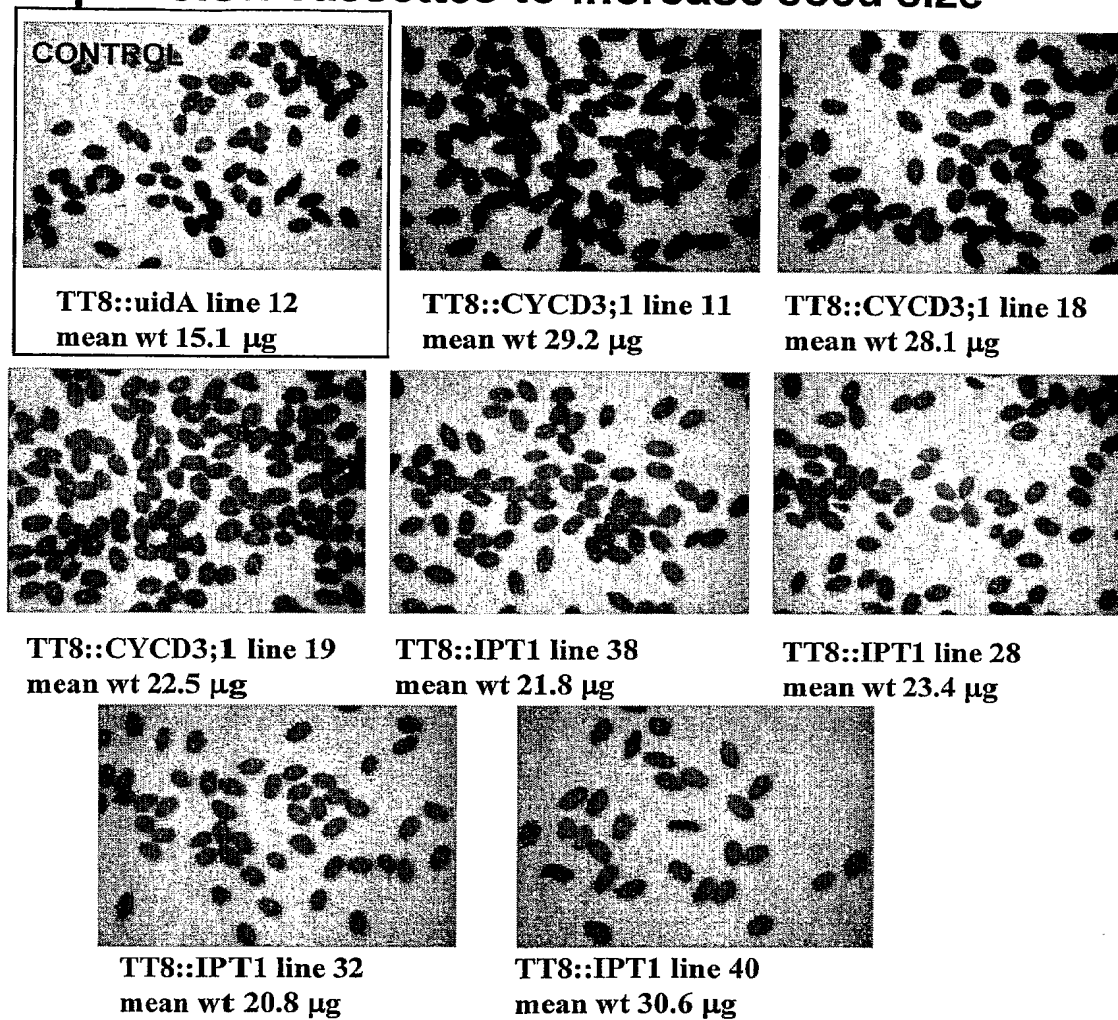
BAN-ANT-BJ40

BAN-CYCB1;1-BJ40

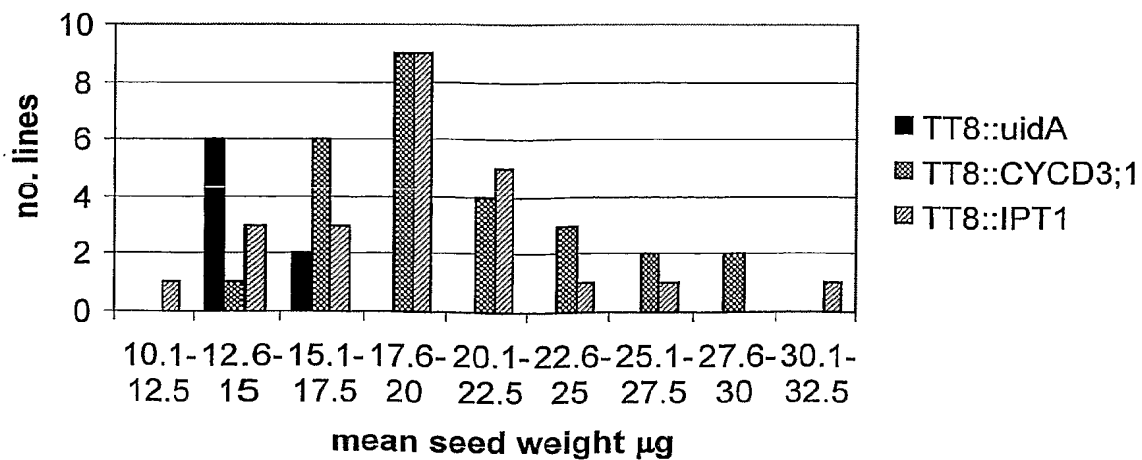
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Figure 21A

Expression cassettes to increase seed size



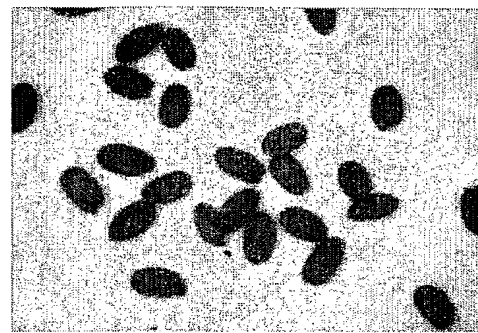
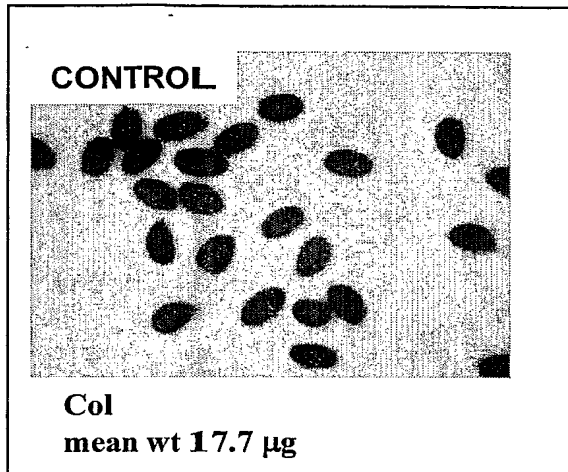
Distribution of seed weights in TT8::uidA (control), TT8::CYCD3;1, and TT8::IPT1 families



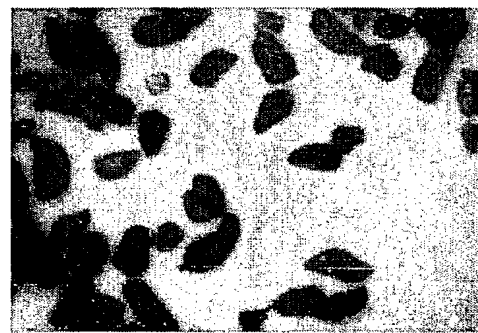
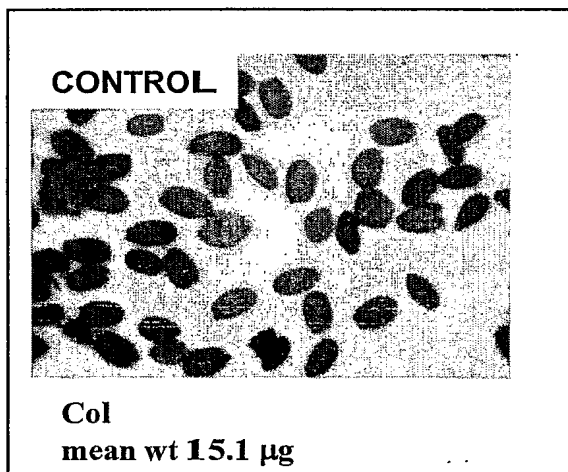
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Figure 21B

Expression cassettes to increase seed size



BAN::CYCD3;1 line 1
mean wt 23.9 μ g

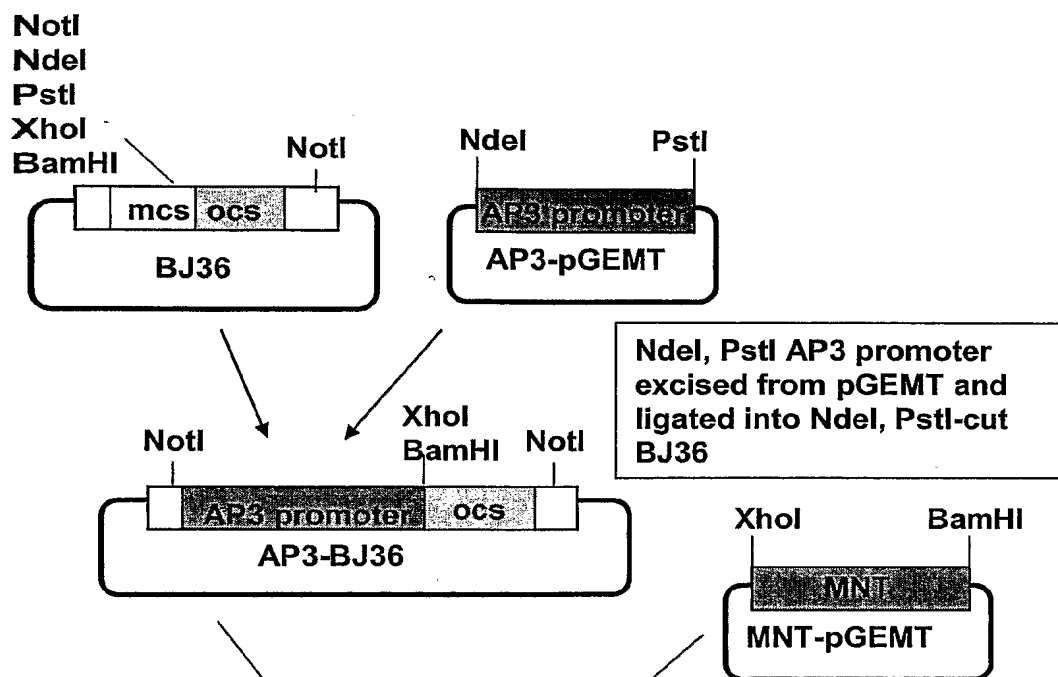


INO::IPT1 line 9
mean wt 23.1 μ g

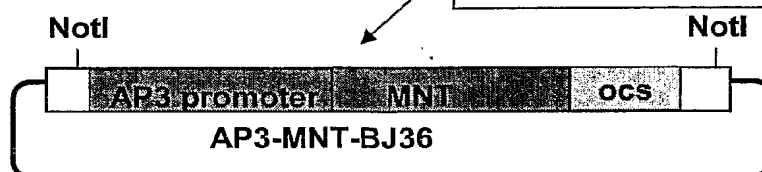
Figure 22

Cloning strategy, Example 14

Example 14a



Example 14b



Example 14c

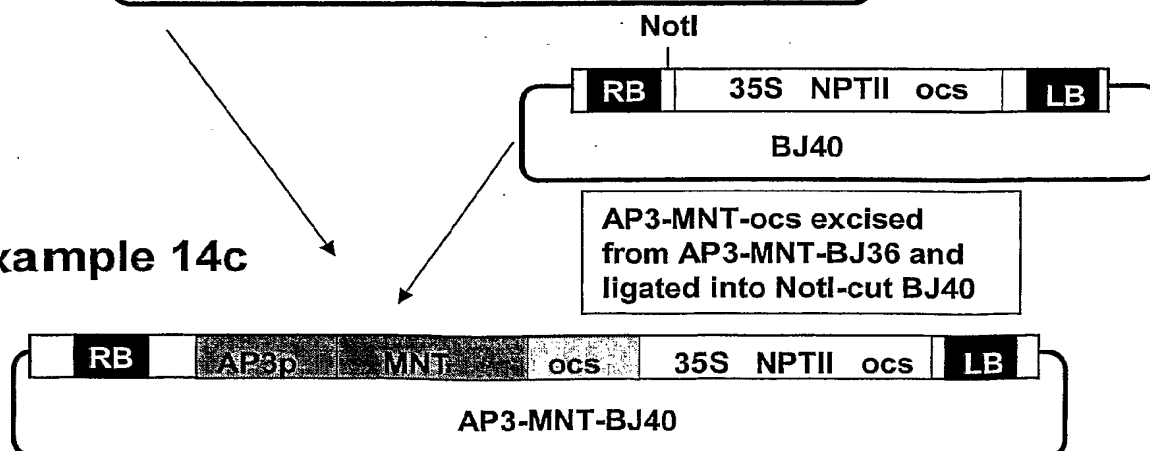


Figure 23

Cloning strategy, Example 15

Example 15a

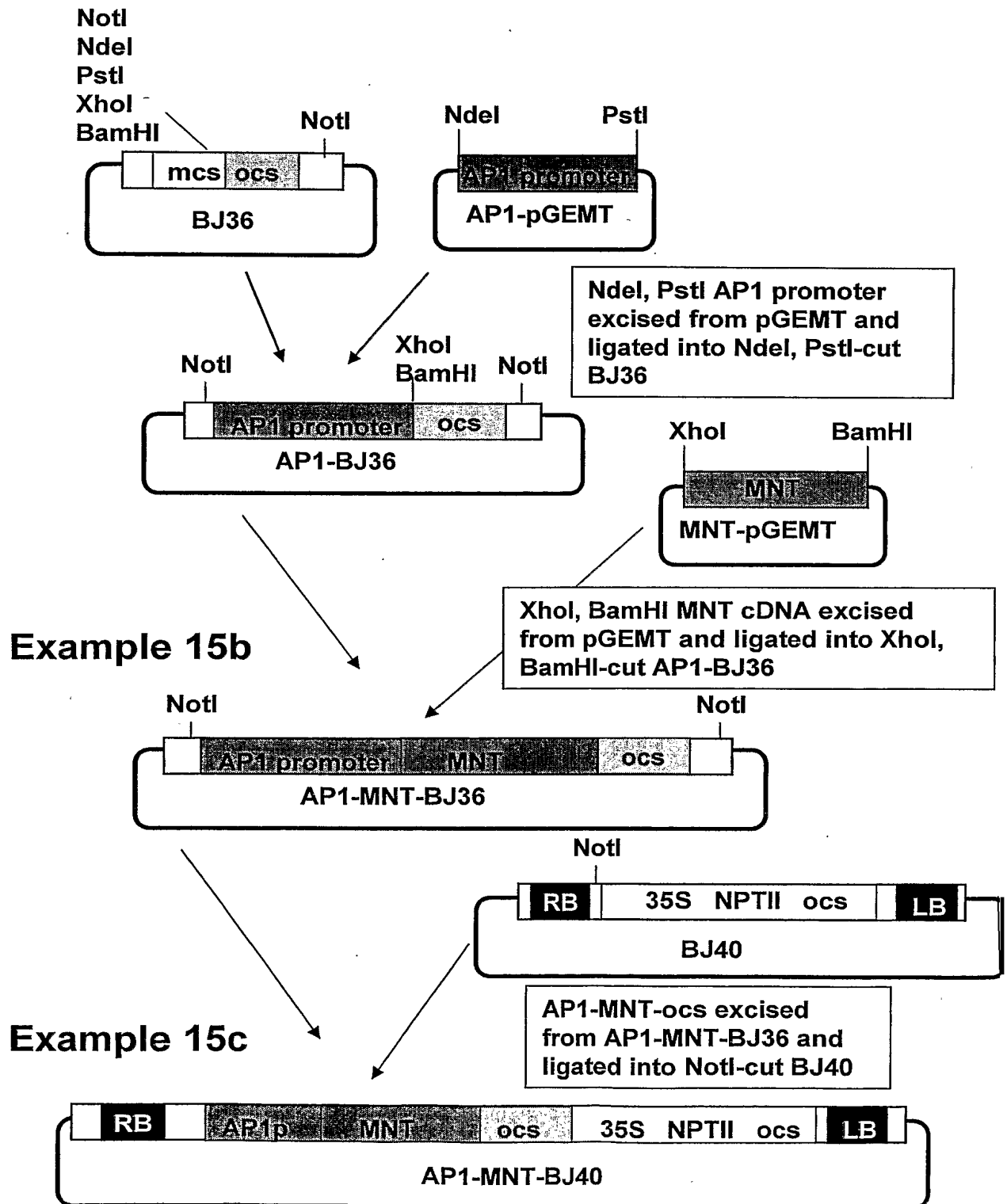
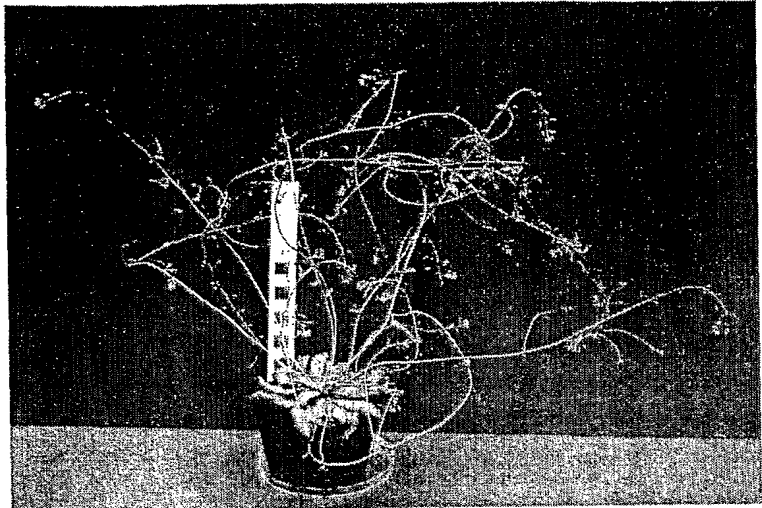
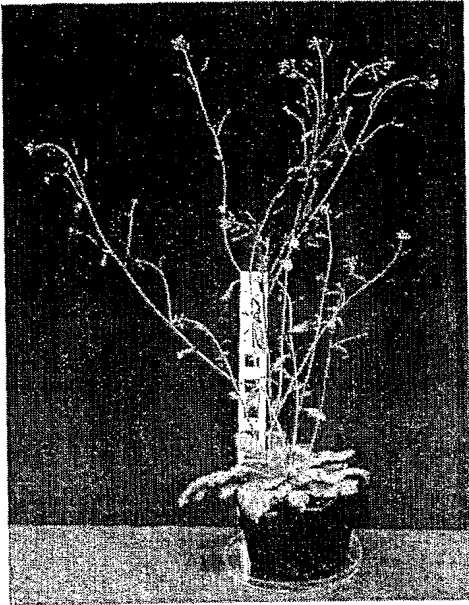


Figure 24

24A Wild-type vs *mnt-1* plants

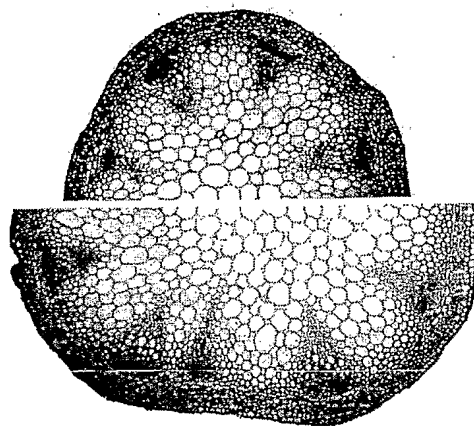


mnt-1

w.t.

24B Wild-type vs *mnt-1* stems, transverse sections

w.t.



mnt-1

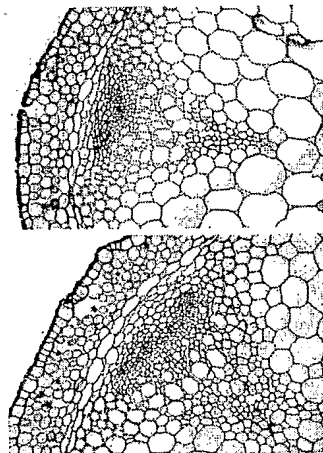


Figure 25

Cloning strategy, Example 18

Example 18a

